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The Edward Stirling Lectures.¹

LECTURE II: MEDICAL EMERGENCIES.

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THE test of a good general practitioner is his proficiency in dealing with emergencies. The correct treatment of an emergency requires accurate diagnosis, calmness, judgement and experience in dealing with human beings, both patients and relatives, at a time when they are frightened and worried.

Diagnosis is always the essential prerequisite to good treatment; but in an emergency leisurely repeated examinations, numerous pathological tests and radiological investigations are not feasible. Consequently, diagnosis must be based on observations derived from the five senses alone, and on correct analysis of the facts elicited often in circumstances in which uninterrupted consideration is difficult. The physician is being besought by relatives to do something, and frequently he accedes to their requests before he has given due thought to the causation of the illness and the best method of treating it. Strength of

character is essential to a good physician who is dealing with the emergencies of practice. Rather a different attitude of mind has to be adopted in the diagnosis of an emergency from that required for a slow definitive diagnosis. If the correct diagnosis cannot be reached with certainty, one must sort the possible pathological lesions into those that have a specific effective treatment and those that have not. Should the diagnosis fall in the second group, failure to reach a complete decision is not so important. If it falls in the first group, a grave error may be perpetrated if one of the possible causes of the condition, for which therapy is available, is forgotten or neglected. For immediate therapy, if the choice lies between a diagnosis in either group, use the specific treatment available provided that it will do the patient no harm. The first principle of treatment still remains "*primum non nocere*". One should also determine, if possible, any precipitating factors that may have produced the disordered physiology, the symptoms resulting from which have caused the emergency. The recognition of such precipitating factors aids prognosis and prevents the physician from making statements which subsequently must be retracted, to the impairment of his reputation. If a serious breakdown in physiological function has occurred as a result of a potent temporary agent whose effects can be countered by specific measures, the prognosis is much better than if the breakdown has its origin in the ordinary wear and tear of life. Heart failure caused by the onset of paroxysmal tachycardia or by severe anaemia, which is susceptible to treat-

¹ Delivered on August 18 and 20, 1953, at Adelaide.

ment, has a much better outcome than a similar degree of failure due to degenerative disease without a specific precipitating cause.

The art of diagnosis consists of three steps. The first is the elicitation of facts through a good history and examination; the second is the sorting out of these facts into their relative importance and the grouping of the most important into symptom complexes; the third is, by application of a knowledge of pathology, the determining of the most likely lesion to cause these symptom complexes. The first of these processes is observational, but the remaining two are purely intellectual. Failure of judgement in selecting the right symptom complexes is the most common cause of a faulty diagnosis. The belief that by multiplication of facts the diagnosis will be correspondingly more accurate is the modern practitioner's most frequent error. The tendency is to have numerous tests performed without knowledge of the fallibility of the tests, and to accept the results of such tests above the information derived from clinical observation. Tests only supply additional information, which must be graded in importance according to the soundness of the principles on which they are based and to the skill of the individual who performed them. It has been my experience in practice that some of the worst mistakes in diagnosis are made by keen individuals who pride themselves on doing their own X-ray and pathological work, and are so obsessed with the nature of these investigations, in which they are not really competent, that they tend to relegate to minor importance obvious clinical findings.

An example of such a mistake was a practitioner who at the demand of the relatives requested me to go to the country, but stated that it was very little use my coming, as the patient was dying of bilateral pulmonary tuberculosis associated with tuberculous meningitis. This was before the days of streptomycin therapy. He stated that the evidence for this diagnosis was incontrovertible as an X-ray examination of the chest showed gross bilateral changes characteristic of tuberculosis, and the cerebro-spinal fluid contained several hundred lymphocytes in each cubic millimetre. In fact the lymphocytes were polymorphonuclear cells, and the X-ray picture was a fogged film on which no competent radiologist would venture an opinion. Clinical examination revealed a harsh cardiac murmur, some subungual splinter haemorrhages and tender Oslerian nodes. The practitioner was correct in one detail, in that my visit was of no avail, and subsequent post-mortem investigation revealed that the illness was due to subacute bacterial endocarditis with a cerebral embolism and resulting meningitis.

A vivid contrast was the statement by an excellent practitioner that he would like me to examine a patient with acute meningococcal meningitis. He stated that he had not as yet performed a lumbar puncture, but would do so before my arrival. On being asked the grounds for his diagnosis, he said that the patient, an elderly woman previously in good health, had developed sudden headache, vomiting and fever, and that he had noted some diffuse small petechiae. Neck stiffness was not at that time present. The cerebro-spinal fluid subsequently confirmed his opinion.

Another example of accurate diagnosis based on sound knowledge of human nature came from another first-class practitioner, who asked me to examine a patient whom he suspected of having a coronary occlusion. The patient was a farmer of very healthy appearance, who denied all symptoms except evanescent giddiness. Physical examination gave completely negative results, but an electrocardiographic tracing showed undoubted evidence of a recent coronary occlusion. The patient was further interrogated, but no history related to coronary occlusion could be obtained. The practitioner, when asked how he had arrived at this correct diagnosis without any guiding symptoms or signs, replied that the patient was a member of a hard-working farming family whom he had known for twenty years, and who had never made any unnecessary demands on their doctor; yet this patient had rung him up at ten o'clock on a Sunday night, and when examined, in the words of the practitioner, "looked crook", but had no obvious evidence of disease. From his knowledge of the patient the doctor was certain that he would not have been called at such an unusual hour unless the patient felt really ill, and in his experience the commonest cause of severe interference with health, unassociated with obvious signs or symptoms, in a male of fifty years was a coronary occlusion.

This story shows the shrewd common sense of the practitioner, the diagnosis resulting from correct emphasis on

the few facts available. The knowledge of the patient, together with a general impression that he looked ill, outweighed negative physical findings and a history remarkable only for its paucity of symptoms.

By contrast, an elderly, drowsy woman, unable to give an accurate history, was unhesitatingly diagnosed on the basis of a high blood urea level as suffering from primary uraemia. The evidence of dehydration and the presence of a small strangulated femoral hernia were not observed, nor had the possibility of prerenal uraemia been considered by the practitioner, who had been overawed by the result of a biochemical test. More careful examination of the patient and more detailed interrogation of the relatives for a history of vomiting or pain might have led to the correct diagnosis; but in the presence of a high blood urea level only one possible diagnosis could be envisaged by the doctor.

One of the most important of the nine "don'ts" recommended by Robert Hutchison as aids to diagnosis is "Don't be too cocksure", and Cromwell's advice to the Scots leaders—"Think it possible ye may be mistaken"—is still good advice to the young diagnostician.

Recognition of the main physiological dysfunction is the key to correct treatment of emergencies. For example, oxygen lack may cause restlessness and a rapid pulse rate, and the treatment is not sedation but methods aimed at decreasing anoxaemia.

A number of conditions which arise rapidly and which demand emergency treatment have shock as the presenting syndrome. The main medical causes of this group are acute blood loss (as in duodenal ulcer), severe infection, and the well known cardiogenic catastrophes of coronary occlusion, pericardial effusion and paroxysmal tachycardia.

The treatment of shock due to bleeding is replacement of the blood. The diagnosis is clear if the patient vomits blood or has a profuse melaena; but it is more difficult in the absence of these two symptoms. In the middle-aged or elderly the anaemia caused by the haemorrhage may manifest itself by the symptoms of acute coronary or cerebral arterial insufficiency. The patient may appear pale; but in persons with numerous enlarged facial venules the anaemia may not be obvious, and in the early stages of haemorrhage before dilution has occurred the haemoglobin reading may not be a true index of the amount of haemorrhage. If in such cases bleeding is suspected, a rectal examination will commonly reveal blood on the examining gloved finger, as even in the absence of diarrhoea the passage of large quantities of altered blood through the bowel is rapid.

Severe infection may produce shock with gross peripheral vascular failure. Most such infections can be easily diagnosed; but an overwhelming invasion with highly virulent organisms having no obvious portal of entry may cause diagnostic difficulties. In recent years, with the general and often unnecessary administration of antibiotics to patients undergoing surgical intervention, a new problem has been created. I have seen three patients, who had been operated on five to seven days previously, develop in a few hours after cessation of their routine penicillin injections an acute circulatory failure from which two of them died; *Staphylococcus aureus* was recovered from the wounds of two patients. Apparently infection in the wounds was largely controlled by penicillin, which prevented the development of frank pus, but did not stop the growth of organisms. On cessation of therapy rapid multiplication of bacteria with a rapid rise of toxins in the blood-stream precipitated acute peripheral failure. Early recognition of this condition, which may be confused with painless coronary occlusion, is essential, as death may occur within six to twelve hours from the onset of symptoms. Massive doses of the antibiotics most likely to be effective should be used. There is no time for testing the sensitivity of the organisms to different antibiotics.

Coronary occlusion associated with severe shock usually presents with such a clear-cut clinical picture that the diagnosis is obvious. Some patients, however, develop a thrombosis in a painless fashion; others have atypical symptoms, and some have normal electrocardiographic tracings for some days after the onset of symptoms. Lack

of electrocardiographic support should not be considered as invalidating a diagnosis of coronary occlusion.

The best treatment is the intravenous injection of morphine to relieve pain. Subcutaneous injections in people with profound shock are unsuccessful and the drug is not absorbed; further injections are given, and when the patient improves an excessive amount is absorbed. Atropine may be given to counter some of the often distressing side effects of morphine. In the treatment of patients who are known to be sensitive to morphine, injections of pethidine or papaverine should be used. If effective laboratory control can be maintained, anticoagulant treatment should be commenced, and is especially important in the care of those patients with severe shock, evidence of a large infarct, or history of previous thrombotic episodes. This form of therapy has probably reduced the mortality rate by 10% to 15%, owing to a decrease in thrombo-embolic accidents.

Early ambulation, as advocated by many American authors including Levine, diminishes the likelihood of embolism, and it has been suggested that early movement achieves as good results as anticoagulant therapy (Littmann, 1952); but this is not proven, and in the emergency treatment of severe coronary occlusion 0.6 to 0.8 cubic centimetre of heparin (25,000 units strength) should be given intramuscularly at twelve-hourly intervals. Treatment may be continued with this substance, the fluidity of the blood being controlled by estimation of the clotting time; or, as is more usual, ethylidene dicoumarol, "Tromexan" or "Dindevan" should be used. The last-mentioned seems easier to control than dicoumarol and produces an effect in thirty-six to forty-eight hours. The initial dose of "Dindevan" should be 200 milligrammes, followed on the next day by 100 milligrammes, and the subsequent daily dose ranges from 50 to 100 milligrammes.

A previous history of duodenal ulcer, renal disease or a bleeding tendency contraindicates the use of anticoagulants.

Intravenous infusions of plasma have been used in an attempt to counter low blood pressure, but there is no convincing evidence that the mortality rate is thereby reduced. The shock in coronary occlusion may be intense and yet the patient may recover. Apart from acute blood loss, probably no other condition causes such a degree of non-fatal collapse. "Methedrin" or "Neosynephrin" may be used in an attempt to raise the blood pressure.

Acute pericarditis with effusion is associated with low output cardiac failure and the signs of shock. Diagnosis of this condition is difficult. The clue may be given by the presence of a nearby focus of infection, or evidence of pyæmia in that type which is secondary to disease elsewhere. The classical physical signs are very similar to those occurring in the large heart of patients suffering from acute viral myocarditis. Tapping by the usual routes does not always determine the issue, and thoracotomy is then necessary. Suitable antibiotic treatment should be given.

Massive pulmonary embolism causes severe shock and may be confused with coronary occlusion. It occurs most commonly in overweight, dehydrated patients with impaired cardio-vascular efficiency who have been confined to bed. In Wright Smith's series cardiac failure was the main ætiological factor. Post-operatively it occurs usually from the tenth to the fourteenth day, whereas coronary occlusion and massive collapse of the lung occur in the first few days. Patients who survive the original shock, which is associated with pain similar to that of coronary occlusion, develop signs of right-sided heart failure including congested veins, cyanosis, rapid pulse, triple rhythm, reduplicated pulmonary second sound and right ventricular apex beat. Moist sounds may appear in the lungs; but in a massive embolism local lung or pleuritic signs do not occur immediately. After twenty-four to twenty-eight hours lung signs associated with blood-stained sputum may occur. If pleuritic pain is present from the onset, shock is commonly minimal, as the embolism is occluding a relatively small vessel. Cyanosis and dyspnoea

are much more severe than in coronary occlusion, and if they are very obvious suggest pulmonary embolism. A clue to the diagnosis in patients after operation may be an unexplained "spike" of temperature a few days before the onset of the catastrophe. In a series of 40 cases of fatal post-operative pulmonary embolism reviewed by me in 1940, the "spike" of temperature occurred in seven. The details are as follows:

There were 10 male patients and 30 female patients, and the average age was fifty-eight years. The average interval since operation was 11.6 days, and the average duration of the final seizure was eight minutes. There was preexisting evidence of cardiac disease in 20 cases. Post-operative "spikes" of temperature occurred in seven cases, there was previous evidence of infarct in four cases, and previous embolic symptoms had occurred in three cases. The main symptoms were as follows: dyspnoea, four cases; cyanosis, four cases; pain, four cases; collapse, three cases; sweating, two cases; "called for pan", two cases. The types of operation preceding the embolism were as follows: gynaecological procedures, 10 cases; setting of fracture, eight cases; upper abdominal sections, seven cases; lower abdominal sections, seven cases; mastectomy, three cases; craniotomy, two cases; prostatectomy, two cases; operation on an infected toe, one case.

Such a "spike" of temperature also suggested the correct diagnosis in the case of a young man who had been confined to bed with mumps and who had suffered a sudden severe attack of pain associated with shock, which was at first diagnosed as coronary occlusion. Post-mortem examination revealed a massive pulmonary embolism.

Evidence of tender calves or local swelling, or the presence of Homan's sign supports the diagnosis. Shock should be treated with morphine and atropine or papaverine, and right-sided heart failure by oxygen and venesection. Anticoagulant measures should be instituted.

Acute spontaneous pneumothorax producing severe shock is usually recognized by the sharp tearing pain localized to one side of the chest, severe dyspnoea and characteristic pulmonary signs. Displacement of organs is the most important sign. There is considerable variation in the breath sounds, which may be diminished, absent, or in a smaller percentage of cases of the classical amphoric type. This accident most commonly occurs in association with exertion. A favourite cause in the days before the motor-car starting-up system had been brought to its present pitch of efficiency was cranking a car on a cold morning. Sexual intercourse is a not uncommon cause in those patients whose attack occurs at night. Recognition of this condition is important, since, if the symptoms are regarded as being of cardiac origin, the patient will be given morphine, which will accentuate his respiratory distress and may lead to death. The treatment is the insertion of a needle in the pleura and withdrawal of air with a syringe to allow reduction of pressure. In an emergency nothing but a needle is required. Water seals and manometers are unnecessary.

A rare intrathoracic cause of shock associated with pain is spontaneous mediastinal emphysema. This may occur in young people, and is not associated with the usual pathological conditions which admit air into the mediastinum. The amount of escaped air may be small and impossible to detect by clinical examination. Occasionally, by rolling the patient into the left lateral position a peculiar crunching noise synchronous with the heart beat may be heard lateral to the apex beat. Radiological examination of the chest may reveal air behind the sternum. Treatment consists of relief of pain. Very rarely does the amount of air produce mediastinal compression requiring needling of the mediastinum or thoracotomy.

Cardiac Emergencies.

The most common emergency to which the practitioner is summoned is that presented by the hypertensive subject with severe cardiac asthma, who is sitting up in bed or in a chair, blue in the face, gasping for breath and sometimes with pinkish frothy sputum coming from his mouth. The old-fashioned treatment with morphine and atropine is still the best. If the patient does not respond, aminophylline (0.24 to 0.48 gramme) should be given intra-

venously, and if cyanosis and venous hypertension are severe, phlebotomy or the application of tourniquets to the limbs should be carried out. For patients who have not been taking digitalis, the rapid intravenous administration of digitalis may be necessary. In such cases it is my custom to use ouabain (0.25 to 0.5 milligramme) intravenously, as it is my impression that this drug is more effective than the digitalis glucosides. There is some slight physiological support for this belief. Digoxin (0.75 milligramme) and digitoxin (0.5 milligramme) are the most commonly used intravenous preparations of digitalis. The administration of digitalis is rarely required in such cases. Smirk recommends an injection of hexamethonium bromide if the blood pressure is very high. When the acute attack has subsided, the frequency of subsequent attacks can be diminished by the use of a maintenance dose of digitalis and weekly or fortnightly injections of mersalyl. One of the precipitating causes in older men is bladder distension with a reflex rise in pulse rate. Many men whose bladders are distended wake up, but are disinclined to walk to the toilet, and the use of the urinal bottle should be encouraged with a view to prevention of the rise in pulse rate that may cause an attack of cardiac asthma.

The onset of an abnormal rhythm may precipitate cardiac failure. The most common abnormal rhythm is auricular fibrillation, which should be treated by rapid digitalization, either by the oral route, or if the failure is very acute by the intravenous injection of digoxin (0.75 to 1.0 milligramme), together with 0.25 milligramme by mouth. The oral dose should be continued four hourly until the desired effects are obtained, or if the patient is vomiting a further intravenous injection of 0.25 to 0.5 milligramme should be given in six hours. Digitalization by one dose of digitoxin has been advocated; but as patients vary in their requirements of digitalis it seems a dangerous method, especially in the treatment of the elderly and arteriosclerotic patient. Digitoxin is very rapidly absorbed by mouth, but its excretion is slower than other glucosides, and if the required dose is exceeded the toxic effects last longer.

Regular paroxysmal tachycardia in a subject with a presumably healthy heart is generally due to auricular tachycardia. Ventricular tachycardia more commonly occurs if there is evidence of heart disease and may sometimes be recognized clinically by a slight irregularity in rhythm and variation in the first heart sound. Diagnosis presents few difficulties, as usually minor attacks have occurred in the past. Confusion is likely to occur if the rapid rhythm commences after operation. In recent years I have seen four such cases; in one the condition developed after a thyroidectomy, and thyrotoxic crisis was at first considered the likely diagnosis; in another it followed a gynaecological operation, and internal bleeding was suspected until it was noticed that the neck veins were full, and that the patient appeared too well for a person with such a rapid pulse due to blood loss.

Auricular tachycardia may be stopped by pressure on the carotid sinus or eyeballs. The most commonly used drugs are quinidine given orally and "Prostigmin" and digitalis, which is often effective, and which should always be used if congestive failure is present. If quinidine is not available for intravenous administration, 10 grains of quinine dihydrochloride in 10 cubic centimetres of water may be used. Intravenous injections of quinine or quinidine should be given very slowly. If the tachycardia is causing no great distress, quinidine sulphate, six grains every two hours for five doses, should be given. "Prostigmin" in doses of one to two milligrammes is probably less effective than mechohyl, but causes less unpleasant effects. Mecholyl is given initially in doses of 10 to 20 milligrammes, and may produce cardiac arrest, sweating and vomiting. A tourniquet should always be available to stop the circulation in the arm into which the drug has been injected, should these side effects develop. Atropine sulphate in a dose of 1/50 grain should be given intravenously in the other arm.

If a definite diagnosis of ventricular paroxysmal tachycardia is made, quinidine is the drug of choice. Digitalis should not be used, as it may precipitate ventricular fibrillation.

The Stokes-Adams syndrome is rarely seen by the practitioner, as the patient has usually recovered or died before he arrives. The doctor, if the attack is repeated, may notice an interruption of conversation, an unseeing stare, and slight tremors leading ultimately to convulsions in a cyanosed individual with fixed and dilated pupils. Just as the doctor is about to pronounce life extinct a slight gasping sigh occurs, the patient flushes, the pulse returns and consciousness is regained. Three minutes' apnea followed by recovery is the longest period of unconsciousness that I have seen. The treatment recommended is the intravenous injection of adrenaline, but as the ventricle is at a standstill it should be injected directly into the heart.

A minor disorder that is often confused with cardiac disease is Gowers's vasovagal syndrome. In this condition, sweating, nausea and collapse associated with a slow pulse produce in the patient a feeling of impending dissolution. The condition is not serious and is relieved by atropine. Another condition which may be confused with cardiac disease is acute dilatation of the stomach occurring in association with pleurisy. As the stomach distends, the pulse rate rises. This condition is well known as a post-operative complication. Insertion of a Rehmann tube and the application of suction relieve the condition.

Status Asthmaticus.

Allergic bronchospasm occurring only at night may sometimes be confused with paroxysmal left ventricular failure; but a patient who is seen in *status asthmaticus* presents no diagnostic problem. The patients give a history of frequent attacks of asthma, the lung signs are obvious, and if signs of cardiac failure are present they are those of right-sided heart failure. Unfortunately, at least in Victoria, most patients suffering from *status asthmaticus* are resistant to adrenaline therapy, owing largely to the practice of inhaling large quantities of a proprietary preparation containing a strong solution of adrenaline. In such crises the usual doses of adrenaline recommended are ineffective; but Hurst's method of slow subcutaneous injection of one to two cubic centimetres should be tried. These patients are always dehydrated, and an intravenous drip administration of glucose should be started. Sedation is important, and is achieved by the intramuscular injection of 10 cubic centimetres of paraldehyde or four to six drachms in olive oil by the rectum. Aminophyllin (0.5 gramme) should be given in the intravenous drip solution twice a day. In intractable cases ACTH should be added to the drip solution, and is often effective; but frequently the spasms tend to recur when the agent is omitted. Potassium iodide in ten grain doses should be given in water orally if the patient is able to swallow and is not vomiting. In patients who are less severely ill, ephedrine (three-quarters of a grain) with "Hyalase" (one milligramme) given intramuscularly may be effective, and acts in about three minutes.

A favourite "gunshot" prescription known to the resident medical officers as "asthma cocktail" is used at Saint Vincent's Hospital by the allergist, and consists of one gramme of vitamin C, 10 units of ACTH, one cubic centimetre of adrenaline and one gramme of "Pentothal" in a litre of glucose saline solution. It appears to be effective in some desperate cases.

Central Nervous System.

Acute meningitis demands correct diagnosis and adequate early treatment. In babies and the aged, or when it is complicating other diseases, the signs of meningitis may not be clear cut, and the diagnosis will depend on examination of the cerebro-spinal fluid. Treatment is varied to suit the sensitivity of the invading organism; but in a case of emergency the organism will not be known. A specimen of cerebro-spinal fluid should be set aside for culture and another specimen examined for type of cells. A knowledge of whether the cells are lymphocytes or poly-

morphonuclear cells is obviously of great importance in treatment. In all cases of suppurative meningitis the sulphonamides should be prescribed in full dosage—for example, sulphadiazine six grammes *statim* followed by one gramme four-hourly for two days. If Gram-positive organisms are seen in the smear, penicillin is also given in a dose of 1,000,000 units two-hourly. If Gram-negative organisms are present, streptomycin is used in a dose of 0.5 gramme twelve-hourly. If no organisms are seen, both penicillin and streptomycin are employed. In addition to intramuscular injections, 10,000 units of penicillin or 50 milligrammes of streptomycin should be given intrathecally. The remainder of the continuing treatment depends on the growth of the organism and its sensitivity reactions.

Status epilepticus requires urgent treatment consisting of injections of paraldehyde (five to 10 cubic centimetres) and phenobarbital sodium (three grains) repeated until the fits are controlled. When the fits have stopped, sufficient drug should be given to keep the patient quiet for twenty-four to forty-eight hours. Unless the patient is well sedated for this length of time the fits will recur. After this period the standard treatment for epilepsy should be used. Penicillin therapy to prevent pneumonia should be instituted when the patient is first examined.

One of the most distressing episodes of practice is being called to the young, healthy person who has developed a violent headache, neck stiffness and eventually unconsciousness as a result of the rupture of an intracranial aneurysm. The diagnosis is usually obvious, although the presence of fever in some patients may suggest acute meningitis and the true cause of the symptoms can be determined only by lumbar puncture. In a few instances, ophthalmoscopic examination revealing a subhyaloid hemorrhage will show the correct diagnosis. In parenthesis, ophthalmoscopic examination should always be included in the investigation of an acute central nervous system lesion, and frequently the presence of hypertensive or diabetic retinitis, syphilitic choroiditis, optic neuritis or a choroidal tubercle will establish the nature of the pathological lesion. Lumbar puncture should be used in the treatment of subarachnoid hemorrhage only if the signs of intracranial pressure are increasing. The blood pressure may then be lowered with hexamethonium. If it is clear on which side the aneurysm lies, and if it is apparent that the patient is growing much worse, a carotid sinus artery ligation may be performed. If the side is not apparent or if the patient survives the initial ictus, a neurosurgeon should undertake arteriography and plan the best method to deal with the type of lesion found.

Unfortunately no satisfactory method has been found for dealing with intracerebral hemorrhage, and the best immediate treatment for a stroke is still adequate nursing attention. Injection of the stellate ganglion in cerebral thrombosis is favoured by some, but the results are disappointing. It is probably of more value in patients who have had a cerebral embolism. Some patients having arteriosclerotic cerebral vessels in whom a coronary occlusion occurs may, as the result of the lowering of blood pressure, develop evidence of interference with cerebral blood flow. Confusion, hemiplegia or aphasia may occur and persist for several months, but in some instances even after such an interval of time, sudden dramatic disappearance of signs may occur. Consequently, if cerebral lesions are associated with coronary occlusion, the physician should not be unhesitatingly gloomy in his prognosis. Two such examples are illustrated in the following clinical histories:

A woman, aged sixty years, had some chest pain followed by severe hemiplegia and aphasia. The electrocardiogram showed signs pathognomonic of a coronary occlusion. For four months she lay speechless, paralysed and unconscious, and suddenly on Christmas Eve she regained her speech, her hemiplegia disappeared, and she upbraided her family for not buying presents for her nephews.

A quiet, philosophical scholar, subsequent to a coronary occlusion, became confused and agitated, and for some months was a trial to the nursing staff of a private hospital, and if left for a moment he would appear in the hall with-

out his clothes. One day he recovered suddenly and immediately commenced reading a book of abstruse philosophy.

Subarachnoid or subdural hemorrhage causing unconsciousness may sometimes be confused with diabetic coma or uremia, as in hemorrhage at the base of the brain, sugar, or less commonly albumin, may appear in the urine in large amounts. Rarely is the glycosuria in such cases associated with ketosis unless there has been previous vomiting, and if a blood sugar estimation cannot be performed, any patient who is unconscious and has both sugar and ketones in the urine should be treated as suffering from diabetic coma. The main principles of such treatment are the early use of adequate amounts of insulin, the correction of dehydration, the treatment of infection, and in the stage of recovery the prevention of hypopotassemia. Fifty units of insulin two hours after the onset of coma are worth many hundreds twenty-four hours later. If the coma is deep, the patient should receive 100 units immediately, of which 50 should be given intravenously and 50 units half-hourly until signs of recovery occur. The fluid given intravenously should be either saline to the first litre, of which 10 cubic centimetres of 4. molar sodium lactate solution is added, or a properly balanced solution containing the salts normally found in the body. Glucose should not be used until the coma is lessening and the sugar and ketones are clearing from the urine. Infection is the precipitating cause of coma in a high percentage of cases, and even when no obvious focus is present, penicillin with streptomycin or alternately one of the broad spectrum antibiotics should be used.

Several years ago a patient who was well when her husband went to work was found unconscious on his return. No obvious source of infection could be found on examination, and no penicillin was given. She died despite enormous doses of insulin, and at the autopsy salpingitis due to a streptococcus sensitive to penicillin was found.

Since then all my patients have received penicillin; but two years later another patient died in coma with silent bowel infection due to an organism sensitive to streptomycin. These tragic deaths have made me stress the necessity for treating with antibiotics all patients with diabetic coma although no sign of infection is observed.

Surgeons and practitioners past middle life are aware of the dramatic emergency resulting from thyrotoxic crises; but the younger generation has not seen such distressing cases. Crises still occur in patients with unrecognized thyrotoxicosis, but very rarely post-operatively, as in general pre-operative management is satisfactory. Recently I saw a patient with the *forme fruste* of the disease—an elderly woman, thin and dehydrated, with no noticeable enlargement of the thyroid, vomiting, and with a pulse rate of 160 per minute. Treatment is urgent. Glucose should be given intravenously and sedation should be effected with barbiturates and iodine, in the form either of sodium iodide (15 grains) or Lugol's solution given intravenously. Thiouracil has obviously no place in the treatment of this acute emergency; but in senior examinations it is commonly recommended by candidates, who promptly greatly reduce their chances of passing. The main difficulty in the diagnosis of this condition is that the practitioner rarely thinks of it as a cause of severe tachycardia unless an obvious vascular thyroid gland is present. Such patients are thin and restless, and yet often have a myasthenic expression.

Tetanus, which is a relatively rare disease, requires urgent treatment as soon as the diagnosis is made. The area of the wound should be infiltrated with antitoxin, as also the paths of the nerves to the area. Two hours later the wound should be excised. An intramuscular and intravenous injection each of 200,000 units of antitoxin should be given. If spasms are already occurring an intravenous drip apparatus should be set up to deliver one gramme of "Pentothal" and two grammes of "Myanesin" per litre; this should take six to eight hours to infuse. If this is ineffective, the amount of "Myanesin" may be doubled or trebled, or tracheotomy may be performed and "Flaxedil" substituted for the "Myanesin". Artificial respiration is often necessary. Two million units of penicillin

given daily help to counter the infection and prevent pneumonia.

Finally those who have not served in tropical parts should be reminded that rarely a patient with cerebral malaria may be seen in Australia. The widespread prophylactic use of mepacrine or "Paludrine" has made it unlikely that malaria will be seen in temperate areas in Australia unless the patient has contracted the disease in passing through a danger zone without having taken precautions. The disease is so deadly and the clinical picture is so variable that correct diagnosis is both urgent and difficult. Fever with headache associated with drowsiness or coma and sometimes focal neurological signs in a traveller should make the examination of a blood film mandatory. If no other likely diagnosis can be made, quinine (10 grains in 10 cubic centimetres) should be given intravenously before the slide is examined, or even if the examination gives negative findings. When the diagnosis is confirmed, "Atebrin Musonate" should be given intramuscularly, and if the patient has not shown prompt improvement the quinine should be repeated in twelve hours.

Conclusion.

In conclusion, one should repeat that the art of dealing with emergencies lies in establishing an accurate diagnosis; if this is not possible, any harmless but effective treatment for those conditions considered in the differential diagnosis should be given. It is better to treat a non-existent disease than to allow a patient to die of a condition susceptible to therapy.

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THE DOCTOR IN THE WITNESS BOX.¹

By R. A. SMITHERS, Q.C.,
 Melbourne.

THE problem of the doctor in the witness box is one of approach. The dominant reaction of most medical men who are invited or forced into the witness box is one of reluctance. If this reluctance can be lessened, contact between doctor and lawyer will be sweetened and the attainment of justice will be promoted.

In talking to the medical profession I am partly concerned to call attention to those aspects of its approach to this problem which may bear correction. I am talking to persons who by training and experience are quite capable of retorting "cast out first the beam out of thine own eye . . .". My answer to this is that I am continually at work on that beam, and that the opportunity of urging reform in another quarter on this occasion is too good to be missed.

The doctor has many reasons for his reluctance. He knows he will be examined, and in particular cross-examined, by a barrister who in the verbal exchanges has certain privileges. He knows that even when these privileges are fairly exercised he is at some disadvantage, and further, that the privilege is on occasions exceeded. He fears that his accuracy and his qualifications and on occasions his veracity may be challenged on grounds which seem to him unjustifiable. He contemplates the possibility that some barrister may cross-examine him, adopting at the same time an attitude of disbelief in his testimony. Further, he realizes that he is most unlikely to be permitted to tell his story in his own way, and that in giving it by way of answers to questions put by persons who may

be unequipped to deal with the technicalities involved, he will fail to say what he thinks should be said. Sometimes he fears that the effect of his evidence may be misrepresented, and what is more, that he may not be believed. From an intensely practical point of view also the doctor knows that if he agrees to give evidence he will probably be called away from his practice at a most inconvenient time. He will perhaps be told that a case is coming on on a certain day, and then keep that day free, only to find that the case has been moved to another day on which he has made a large number of engagements; in consequence he will be put to the greatest inconvenience, and all this for most inadequate remuneration.

All these things add up to make the position of the witness most unfavourable, and the question is, how can he be encouraged to face these possibilities with more equanimity?

Very little can be done about the question of inconvenience. Lawyers on the whole take care to eliminate unnecessary waste of time on the part of their witnesses, but they themselves are in the grip of a dragon in the form of the tyranny of the lists, and to a large extent of judicial insistence on the continuity of hearings despite unexpected settlements and the like. Perhaps the lawyers can do more. Perhaps the matter would justify representation by the British Medical Association at high quarters.

My main concern is with the other intangible factors. Before proceeding to them, let us first inquire whether there are any internal and invalid factors which contribute to the doctors' reluctance.

There is more than a suspicion that many a medical man feels that he should be in some central kind of a position in relation to litigation. He feels that at least he should be considered as "the witness of the court" and that his contacts with either side should reflect an attitude of strict neutrality, he being almost on a judicial plain. Some medical men feel that it is almost improper to be in a position in which they may be said to be "taking sides".

Some doctors feel that they are being exploited by greedy plaintiffs who claim more by way of damages than they themselves feel is reasonable, or by an over-zealous defendant unfairly trying to minimize injuries.

Some doctors object to trial by jury.

May I be permitted to affirm that factors such as these should be eliminated? The doctor is not and cannot be "the witness of the court" in the sense under discussion. He must be called by one side, examined by that side and cross-examined by the other. If his contacts with the side which desires to call him are not adequate to inform that side fully of everything that may be relevant to the issues, there is the strongest probability that the full and proper story will never be told. In all these matters it is necessary to distinguish between bias, which may distort the truth, and intensity of investigation and subsequent instruction of a lawyer in order that no stone may be left unturned in the search for truth. Such bias is unthinkable, but such investigation and instruction are essential to the attainment of justice.

So far as damages are concerned, they are strictly no concern of the doctor. He certainly is entitled to his view as a citizen, but he should leave the determination of the matter to the court. It may well be that he is wrong. It may well be that he sees too clearly the extent to which the patient has recovered from his former unhappy state and does not see clearly enough the extent to which the patient still is, and perhaps always will be, below his normal self. The doctor is a man accustomed to the abnormal in health. His view of normality may be tinged in the same way as that of some lawyers, who are continually engaged in problems of domestic unhappiness or crime.

If he objects to the jury system, he should consider that although law reform is a proper subject for discussion, private notions of law reform should not interfere with the best administration of the existing system. It may also be that the existing system is the best one.

¹Read at a meeting of the Section of Industrial Medicine of the Victorian Branch of the British Medical Association on October 19, 1953.

As to the propriety of assisting one side in litigation, one can understand the careful approach of the doctor. Indeed, throughout the ages there seems to have been a tendency to look down upon a medical man who perhaps for a fee would attach himself to one side in litigation with a view to giving that side the benefit of the fullest medical knowledge relative to the matters in issue. This notion can be found even in the books on medical jurisprudence. No doubt it would be improper for any expert to attach himself to any side and to lend his assistance to the distortion of truth, but that is not the matter under discussion. Nobody ever suggested that it was improper for Sir William Wilcox to give every possible assistance to the prosecution in the many trials with which he was connected, and nobody ever suggested that it was improper for Sir Bernard Spilsbury to work with unbounded enthusiasm and to give the fullest assistance to the prosecution in the many trials in which he was concerned. Nobody ever suggested that they were acting other than to find the truth; but the plain fact of the matter was that they were called by the Crown in most cases and did not communicate to the other side many of their findings before the trial. It was essential that men should be found to look at the issues from the other side, and it was essential that they should do so with enthusiasm. Thus even Sir William Wilcox made a mistake when he first attempted to apply the Marsh test as a quantitative measure for arsenic. Similarly, Dr. Hubert Turnbull, director of the Pathological Institute at the London Hospital, made an error about a sample of skin found on the body of Mrs. Crippen.

These mistakes were discovered; but we do not know how many mistakes were not discovered, nor how many would have been discovered if there had been men working "on the other side" with the same enthusiasm and determination. Errors may be made by one "side", and these can be discovered only by enthusiasm of investigation from the point of view of the opponent. In order that no stone may be unturned, some enthusiasm for a cause must often be engendered. This is to be illustrated by the fact that when Sir Bernard Spilsbury took up the cause of one accused person, he worked at it with such good will, having nightly conferences over some weeks before the trial, that he was able to shake the evidence of two professors—namely, Professor Littlejohn and Professor Glaister, professors of forensic medicine at the University of Edinburgh and the University of Glasgow respectively—and to such good purpose that the prisoner was acquitted, the crux of the case being stated by the Lord Justice Clerk to be the medical evidence.

I myself have been in cases in which it has been discovered after the hearing that a little "partisan" thought would have put the defence onto a valuable line, but this was not done. This valuable line would not have produced some unjust result; it would have assisted in the attainment of truth. No doubt it is the duty of the medical man to be objective; but it is submitted that the maintenance of a too independent quasi-judicial attitude may well in many cases lead to a failure to elicit the truth and consequent injustice.

There should be no anxiety attached to the notion that a doctor is called as a witness by a party. That is inevitable. Examination and cross-examination are the best ways known to the law by which truth may be elicited. The fact that a doctor is called by a party does not stamp him as biased or as an advocate for that party. It may reflect the view of that party that he believes that the facts or opinions which the doctor is able to depose to will support his contentions; but how far that may turn out to be the case depends, of course, on those facts and on those opinions. Some of these internal factors discussed above have, it is thought by many legal men, created difficulties of intercommunication. Some lawyers say that contact with the medical man is like talking to a man through a perforated screen. If these internal factors can be overcome, there remain real reasons for reluctance which were referred to at the commencement. Some observations from a lawyer may help.

Witnesses should be protected so far as possible from unpleasantness and frustration. To some extent the barrister who calls them is responsible to see that this is done, but largely the witness has to protect himself. This he can do if he is cooperative and aware of certain fundamental things.

Perhaps it may be said that the main trouble of a witness arises when he overswears himself. Sometimes, and I think usually, overswearing is accidental. Sometimes it is due to carelessness; sometimes even it is due to a desire to be helpful. It can happen in the twinkling of an eye; but if the witness is to be happy in the box it must be avoided. Assuming complete impartiality, the witness who listens will seldom overswear himself. Listening to the question which is asked is the witness's greatest protection. He must listen to every word. He must refrain from answering until the question is made clear and is clearly understood by him. Once understood, the question must be answered fairly and squarely. There must be no hesitation because the witness fears that the answer carries an implication contrary to a conclusion which he is putting forward. Qualifications come afterwards. If there has been full consultation between the witness and the barrister who has called him, the latter will ensure that opportunity is made for the required qualification. Medical witnesses often approach an inevitable "it is possible" with obvious reluctance. This reduces the influence of the witness. If a certain event is possible, the admission must be made. Such an admission may be put in its proper perspective by a proper description of the degree of the improbability of the event occurring.

What, then, is to be done about the barrister who carries his privileges too far? The judiciary and profession generally frown upon any unfair treatment of any witness. The best protection is a persistence in listening to the question, a determination to answer the question and nothing but the question, and the adoption of a cold and severe correct demeanour. The following extract shows how one witness dealt with a judge who verged on the too severe:

Mr. Justice Humphries: "You did not take the trouble to inquire, is that the fact, whether he had made a profit and if so how much out of the murder of these two persons?"

Dr. Yellowlees: "With great respect I do not know that that is the kindest way to put it. It was not a question of taking trouble; I put all I knew of my experience and ability into coming to a medical conclusion in this case. I took many days over it and spent many nights in reading and I am sorry that I cannot give a more satisfactory account in suitable terms of the various points which led me to my sincere opinion."

The Judge: "I am sorry I do not think we are at one—I am not asking any such question. I was asking you as a mere matter of cold fact whether you had inquired as to whether this man had made large sums of money or not from the murders."

Answer: "I beg your pardon; I thought you suggested I did not take the trouble."

It is often possible to deflate a blustering cross-examiner by asking what question he really is asking, or which of the various questions he has asked he would like answered first.

It is essential for a witness too vigorously cross-examined that he should endeavour to remain calm. As to the question of belief, the lawyer can say that belief does not necessarily depend upon technical brilliance or dialectical skill. It is closely related to personality and demeanour. In relation to belief, truth is like rhythm in music. It is not only heard but felt. The witness must therefore speak from his heart. There are inevitable risks, and sometimes judges and juries make mistakes in assessing witnesses. There is the tyrant called probability; an improbable story may be the true one, but the probable story is the one which has the best chance of being believed. If the story told is improbable, its belief depends upon the creation of an atmosphere of truth in the telling of the story. The creation of such an atmosphere depends upon personality, demeanour, manner and character. The problem may be illustrated by an incident which occurred recently in a country court in Victoria.

The case was one in which the main witness was a man who said he had had some eight or nine shandies on the afternoon of a New Year's Eve and shortly prior to the event in issue in the case. Prior to the hearing of the case, counsel, being in some doubt as to whether the drinks were really shandies, urged the man to tell the truth. The man persisted, and counsel then made full inquiries which convinced him that the truth was that the drinks were shandies and that the man always drank shandies and never drank beer. The evidence was duly given; the man won his case, but only after an unexpectedly long retirement of the jury. The foreman of the jury, being subsequently asked by counsel why the jury was so long in making up its mind, answered: "Two or three of our chaps would not believe that your man drank shandies."

If the man had committed perjury and said he drank beer he would have removed a great disability in his case. Yet it cannot be said that the men on the jury were unreasonable in questioning this statement, which they regarded as improbable and as being a deliberate attempt to avoid telling the truth about liquor consumption. The lawyer must therefore assert that justice is not a science, but an art—that it is possible that truthful witnesses will be disbelieved. He says further that this is merely one manifestation of imperfection in an imperfect world; but he asserts that it emphasizes the necessity for the closest cooperation between witnesses and those responsible for calling them into the witness box.

The witness will, of course, defend himself by refusing to answer double questions.

The witness should also himself be fair with the court. The medical man deals in matters and with terms unfamiliar to the layman. He must aim at reducing his message to the simplest form of proposition and propound it in the simplest terms. One difficulty encountered with the doctor is that in his ordinary sphere he is not only a man of knowledge, but, like the centurion in the Bible, he is a man of authority. He is likely to find the discipline of the witness box irksome. This is a matter for personal accommodation. Dr. Mollison always said that provided an expert witness was master of his subject and had reasonable command of his emotions, he would encounter little trouble in the witness box.

Assuming, then, that problems of approach have been conquered, the lawyer who seeks a medical witness has other difficulties to contend with.

Should the evidence concern a person who has been a patient of the doctor, the question of breach of confidence immediately arises. This may create insuperable difficulty. The doctor may claim a "privilege" from disclosure either in or out of court. Out of court the question is one for the doctor. The claim of privilege stands on the general obligation of honour not to disclose matters ascertained under the personal confidence of patient and doctor. It is of the highest degree of importance that such confidence should not be broken lightly. On the other hand, great issues may be dependent on the information which the medical man has, and it is suggested that it is putting the matter too far to say that there shall be an inviolable and unbreakable rule that what is learnt in the course of examining a patient is not to be made available for the purposes of justice.

So far as the law is concerned, neither the common law nor the statute law of England recognizes the privilege.

The claim of privilege has plenty of support, but Lord Birkenhead's views have strong appeal. They are that in ordinary circumstances common sense and ordinary considerations of honour prevent a doctor from gossiping about his patients' symptoms or histories; but that there are occasions when the issues are so great that this general rule may have to give way.

The ultimate decision to be taken on any occasion of importance has to be made with a high ethical sense of the learned and honourable profession, whose aim it is to raise or at least maintain the standard of physical health in the community, but there must be a balancing of the good and evil which is involved in whichever course the doctor takes.

Those who support the rigid maintenance of the confidence admit that injustice may result from it, but claim that the

greater good is to be found in maintaining the confidence. They hold that if truth must suffer, then it must be recognized that "truth like all good things may be loved unwisely, may be pursued too keenly, may cost too much". They must, however, be prepared to maintain their doctrine under the following conditions: (i) When a doctor has information which he knows can clear an innocent man or prevent the wrongful acquittal of a guilty man in respect of some serious crime. In such a case the confidence to be betrayed may be in relation to a minor matter or a greater matter; it may be the confidence of the accused person; it may be the confidence of some person connected with the case or the confidence of some person unaffected by the issues in the case. (ii) When a divorce is sought based on an allegation by one party against the other that the accused person has imparted a venereal disease to the accuser. The doctor may know that the accused is innocent and the accuser is guilty. Is he to permit one party to be innocently condemned with all the unfortunate consequences of divorce? (iii) When a doctor knows that there has been a fraudulent misrepresentation as to a condition of health in a proposal for assurance in respect of which the insurance company is being sued. (iv) When a doctor is sued for malpractice and another doctor can give valuable evidence for the defence concerning the previous condition of health of the plaintiff—such knowledge, however, having been obtained when the plaintiff was the patient of such other doctor. They must also say whether this doctrine is to apply to the laboratory pathologist merely examining specimens. They must say also whether the privilege is to extend to chemists, Christian Science healers, herbalists, bankers *et cetera*, to all of whom people give vital confidences in important matters.

After the difficulties of finding out what the doctor will say, the lawyer who proposes to call him as a witness has to negotiate section 29 of the *Evidence Acts*. This statutory provisions reads as follows:

No physician or surgeon shall without the consent of his patient divulge in any civil suit, action or proceeding unless the sanity or testamentary capacity of the patient is in dispute, any information which he has acquired in attending the patient and which was necessary to enable him to prescribe or act for the patient.

The policy of this Act was eloquently discussed by Mr. Justice Barton in 1910, as follows:

In considering the range to be protected the legislature had to weigh in the balance the danger to life and health arising in the rigidity of the common law against the loss of material testimony which must often lead to the defeat of justice. They have done this with the result, be it right or wrong in the main, that they have secured the safety of an immense range of confidences and by so doing have necessarily impaired and in many cases prohibited the means of proof in a large class of controversy. If by the expressions they have used they appear to have endangered the administration of justice they will appear to others to have done a righteous work in safeguarding within very wide bounds the confidence necessary to the frank disclosure of history and condition which alone can give sufferers the complete benefit of the skill of their chosen medical advisers.

If in our own view, I do not say it would be the correct view, the humane policy of holding confidences sacred has led the law makers to make inroads fraught with possibilities of disaster upon the administration of justice it is their law and not ours, and if it is plain, as I think it is, we must declare and enforce it.

The first question is, who is a patient? It might have been thought that a contractual relationship was necessary, but that is not the case. The section applies as between the patient and the honorary medical staff at a public hospital; it applies even though the patient is unconscious at all material times. It may apply although the person comes unwillingly. It would seem, however, that it does not apply with respect to persons who are examined under section 61 of the *Motor Car (Third Party Insurance) Act*.

The next question is, how long does the relationship last? And the answer is that it lasts for a period coexten-

sive with the continuance of the relation of personal confidence which may be assumed to exist between the physician and the patient. How long that is is a question of fact in every case.

"Treatment" covers everything from the commencement of investigation until the final cure or abandonment. "Necessary" covers everything which is or is likely to be relevant in determining the proper treatment of the patient—for example, his personal and perhaps his family history. Whether or not there is any actual treatment or whether the doctor determines not to carry out any treatment is irrelevant.

"Information" includes all that the doctor sees, as well as all that he is told. Information is not synonymous with oral or written communication made by the patient to the doctor. On the other hand, information is confined to material which is gathered in the course of treatment. It does not include, for instance, knowledge of a plainly visible wound on hand or face. Such a visible wound is something anybody might see. It has been suggested that although the doctor is forbidden to give evidence of information which he has acquired in attending the patient, and which was necessary to enable him to prescribe or act, there is no privilege preventing the doctor from stating what in fact he did prescribe or what in fact he did. It has been suggested that he may say that he prescribed penicillin or that he cut off a leg or that at a certain stage a child of a certain sex was born and he may say whether it was born dead or alive (see Griffiths C.J., 10 C.L.R., p. 11).

An interesting sidelight on the effect of this section is to be seen in relation to an action in which the previous medical condition of a dead person may be in issue. The judges of the High Court in *National Mutual Life Association versus Godrich*, 10 C.L.R., 1, appear to be of the opinion that consent to the divulging of any information acquired by a doctor in attending a patient cannot be given by the personal representatives of a deceased patient. Such evidence may be essential to found a claim under Lord Campbell's Act by a widow in respect of the death of her husband by reason of somebody's negligence. It may be necessary on behalf of the estate of a deceased person whose personal representatives are suing an insurance company on an insurance policy, when the defence is that the deceased made some wrongful representation as to his previous health.

This section may also have repercussions of an unexpected kind when there is an action against a medical man for malpractice. It may be that the plaintiff has been the patient of some other doctor who could, but for the section, give useful evidence for the defendant.

It is interesting to note that there is no similar section in England. The origin of this statutory privilege is American. It has been proudly acclaimed in some quarters as essential to the social life of a modern State; but one is left to wonder if this is really so. It is a somewhat capricious and uncertain instrument of progress.

Despite its extent, the range of matters on which the medical witness will be required to depose by way either of observation or of opinion is very wide and ever widening. In particular one envisages swift development in relation to evidence of opinion in the realm of mental processes and states of mind. More and more respect is being given to such evidence. The reaction of the trial judge in *Soderman's* case represented an earlier attitude to this class of evidence. As early as 1936 this attitude drew the following comment from a High Court judge:

In my opinion it is to be regretted that during his charge the trial judge endeavoured to discount the effect of the medical evidence. He deprecated reliance upon expert opinion "where one is dealing not with the body but with the mind" as though the special difficulty of the subject made scientific research into it less instead of more valuable. He invited the jury to subject the medical evidence "to the microscope of common sense and experience." What value "common sense and experience" might have in setting at naught the settled opinion of scientists trained in the study and practice of mental conditions it is difficult to say.

Nevertheless it will be long before a medical witness will be called in a British court to give evidence that a witness has a psychopathic personality, a disease the symptoms of which are alleged to include chronic persistent and repetitive lying. Such evidence covering 450 pages of transcript was given in the Alger Hiss case.

But, however wide may become the scope for medical evidence, the essential task of witness and lawyer is to ensure, so far as skill and cooperation can do so, that justice shall be done. It has been the object of this contribution to identify some impediments in the way and to indicate some positive measures which may facilitate the attainment of this our ultimate aim.

SOME STUDIES ON THE AETIOLOGY OF KNOCK-KNEES.¹

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SOME degree of knock-knees is a relatively common occurrence in Australian children. The percentage of children of various ages with more than two inches of knock-knees found in a recent Australia-wide survey (Commonwealth Department of Health, 1950) is shown in Table I. These figures suggest that in children given opportunities for normal development a mild degree of knock-knees will correct itself with the passing of time. In some children, however, the condition persists, finally requiring treatment in orthopaedic clinics.

Although the condition has been recognized for centuries, the aetiology has not been established. Glisson (1651) in his original description of rickets 300 years ago mentioned the occurrence of knock-knees in some of his cases. Other writers, including Bennett (1848), noted that knock-knees was a sequel in some cases to rickets in infancy. In more recent times the authors of some text-books on orthopaedics and paediatrics suggest that rickets is the cause of knock-knees in some children; however, other writers, including Pritchard (1936), Brittain (1948), Price (1949) and Macnamara (1949), doubt that a causal relationship exists. Dunham and Thoms (1945), who reviewed the after-history of ten patients with severe rickets, reported two with knock-knees and the remainder with straight legs.

TABLE I.

Comparison of Incidence of Knock-Knees in Pre-School and Primary School Groups.

Group.	Age in Years.	Knock-Knees One Inch. (Percentage.)	Knock-Knees Two Inches. (Percentage.)
Pre-school group	2-5	43	14
	4-5	44	11
	5	42	7
Primary school group	7	25	4
	14	18	6

This paper presents the results of several studies made over a number of years designed to collect information that might contribute to our knowledge of the aetiology of knock-knees.

LONGITUDINAL SURVEY OF A GROUP OF CHILDREN.

It was possible to follow for ten years the growth of a group of 100 children who had formed part of an earlier study of the incidence of radiographically evident rickets in infants aged under one year (Clements, 1942). In that investigation the radiographic appearance of the distal end of the ulna was used for the diagnosis of rickets.

¹ Most of this work was carried out at the Australian Institute of Anatomy, Canberra, A.C.T.

The diagnostic criteria were those employed by the American school led by Elliot and Park (1938). The earliest sign is imperfect calcification of the metaphysis; if the rachitic process is prolonged or increases in intensity, these radiographic signs progress to the classical wine-glass appearance of frank rickets. About 50% of the 150 infants investigated in the original survey showed radiographic evidence of imperfect calcification of the growing end of the ulna, of some months' duration, some time during the first year of life. For the majority of the infants exhibiting this feature it was the only evidence of departure from normal. When this condition persisted for more than three months, in some infants epiphyseal enlargement and hyperplasia of the costo-chondral junctions appeared. Infants who had radiographically recognized rickets for three months or less grew in a manner identical with infants with normal calcification.

The unanswered question at the conclusion of the previous study was whether the disturbance of calcium metabolism responsible for the radiographic changes had any permanent effect on skeletal development or the structure of the teeth. Observations in respect of Harrison's sulcus and dental caries are given here with the occurrence of knock-knees in 100 of the original 150 children who were examined at regular intervals over ten years. Although this paper is concerned primarily with knock-knees, the other two conditions are included because the three are frequently grouped together as sequelæ of rickets.

Standards Employed.

A Harrison's sulcus was recorded as present if a distinct hollow extended around the chest from the xiphisternum to the anterior or mid-axillary line. No account was taken of its shape—that is, whether it was narrow and deep, or wide and shallow.

Knock-knees were determined by making the child sit in a straight-backed chair and flexing the hip joint at a right angle to the trunk, the knees being kept straight and the medial borders of the feet perpendicular and parallel to each other. The legs were extended at the knees and drawn together until the condyles of the femurs touched firmly. The distance between the two internal malleoli was then measured. If this distance exceeded one and a half inches in young children, and two inches in older children, they were judged to be suffering from knock-knees.

The state of the teeth was classified as follows. Group I: no caries; Group II: slight caries in one, two or three teeth, generally in the interproximal surfaces; Group III: extensive caries in two or more teeth. At the conclusion of the study the children had some permanent teeth. It was found that if the permanent teeth were carious, the state of the mouth was such that the child was placed in Group III.

Results.

Table II gives the incidence of Harrison's sulcus and knock-knees and the state of the teeth at the final examination. These figures do not, however, tell the whole story, which is revealed by studying the records at the various ages.

Harrison's Sulcus.

The results of this longitudinal survey suggest that once a Harrison's sulcus has developed it persists throughout childhood, generally, however, with some change in shape. The age of onset was usually between the second and fourth birthdays, in the majority of cases nearer the younger age. In some infants and young children the shape of the sulcus was accentuated by a protruding abdomen, which had caused the lower end of the ribs to flare outwards. The sulcus tended to be deep and narrow in younger children and with growth to broaden out and become shallower.

Knock-Knees.

The majority of children who developed knock-knees already had the condition in some degree at the age of two and a half years. This observation in a relatively

small group of children was confirmed by the records of some 1700 pre-school children studied at the Lady Gowrie child centres. Approximately 16% of these children had knock-knees at some time between the third and sixth birthdays. Of these, over 90% had already developed the condition before their admission to the centre at the age of two and a half years.

Of the 100 children in the present investigation, 22 had knock-knees for some period during the nine to ten years of the study; 14 who had developed the condition before the age of thirty months still had it at the end of the period—that is, at the age of nine to ten years. At this time the condition was severe in six of these, the internal malleoli being separated by three inches or more. Four children who had knock-knees of one and a half inches

TABLE II.
Incidence of Various Defects at Final Examination
(100 Children Examined).

Condition.	Number of Children with Various Conditions.
Harrison's sulcus	42
Knock-knees	22
State of teeth:	
Group I	26
Group II	13
Group III	61

or more at the age of thirty months showed progressive improvement, so that at the age of nine or ten years the legs were straight.

No correlation was found between the presence of Harrison's sulcus, knock-knees and the presence or degree of dental caries; that is, in this series the three conditions behaved as unrelated conditions.

Relation between these Defects and the Quality of Calcification of the Long Bones in Infancy.

The serial radiographic study made of the ulna of these infants during the first twelve to eighteen months of life showed imperfect calcification of the metaphyses in 47. Tables III to V give the results of the correlations between the presence of the various defects in each child and the degree of calcification of the long bones in infancy.

TABLE III.
The Incidence of Knock-Knees and the Degree of Calcification of the Bones in Infancy.

Condition.	Number of Children.		
	Calcification Satisfactory.	Calcification Unsatisfactory.	Total.
Knock-knees	13	9	22
Straight legs	40	38	78
Total	53	47	100

Statistical treatment of these figures confirms the observation that a positive correlation does not exist between the two factors in each table. In other words, imperfect calcification of the long bones in infancy (radiographic rickets) does not in all cases predispose the child to the development of a Harrison's sulcus, knock-knees or a high incidence of dental caries. This finding does not deny that it could be a causal factor or an associated factor in some cases.

The finding in respect of Harrison's sulcus confirms the observations of earlier workers (Dalzell and MacKay, 1923; Naish and Wallis, 1948), that Harrison's sulcus is

valueless as an indicator of former rickets. From this study the same can be stated for knock-knees.

The observation in respect of knock-knees means that it was necessary to look for other explanations of the cause of knock-knees.

A STUDY OF SOME ASPECTS OF THE MORPHOLOGY OF KNOCK-KNEES.

In this study children aged from two and a half to five years with more than two inches of knock-knees were compared with children of the same age, sex and apparent osteological development who had straight legs.

A clinical examination was supplemented by an antero-posterior radiograph of the lower limbs from just below the hip joint to the feet; standard conditions of posturing were observed. One radiograph of each pair was superimposed on the other so that the shafts of the femurs coincided. If this could not be done satisfactorily the pair was rejected.

TABLE IV.

The Incidence of Harrison's Sulcus and the Degree of Calcification of Bones in Infancy.

Condition.	Number of Children.		
	Calcification Satisfactory.	Calcification Unsatisfactory.	Total.
Harrison's sulcus	20	22	42
No Harrison's sulcus ..	33	25	58
Total	53	47	100

Twenty pairs of radiographs were studied, and the following observations were made about the children with knock-knees (see Figure 1): (i) The lateral angle between the femur and the leg bones was decreased owing to abduction of the distal end of the tibia and fibula. This is the obvious clinical feature. (ii) The head of the tibia was displaced laterally on the condyle of the femur. (This observation has not been previously reported, so far as I am aware.) (iii) The medial condyle of the femur was

TABLE V.

The Incidence of Dental Caries and the Degree of Calcification of Bones in Infancy.

Dental Condition.	Calcification Satisfactory.	Calcification Unsatisfactory.	Total.
Group I	17	9	26
Group II	9	4	13
Group III	27	34	61
Total	53	47	100

enlarged medially and distally. (iv) The epiphyseal plate of the femur presented the same angle with the shaft of the femur as it did in the child with straight legs.

It seemed that in the interpretation of these observations the first point to be cleared was the reason for the enlargement of the medial condyle of the femur. This could either be a primary change or be secondary to the movements of the leg bones. If it was the primary change, it would be the result of excessive bone growth on the medial side of the femur. Payton (1933), using madder in the diet of experimental animals, showed that growth does not occur on the diaphyseal side of epiphyseal cartilaginous plates; most of the growth is on the metaphyseal side, and there is a significant amount of growth beneath the articular cartilage. Presumably the increased cellular activity leading to growth in length could occur only if a physiological stimulus was applied to one or both of these

sites. Evidence for such a stimulus has not been forthcoming.

The application of Wolff's law does suggest that bone growth is a secondary development, being an attempt by the local tissues to fill a potential space. Payton's studies do offer a possible explanation for the medial growth of the epiphysis—namely, cell activity beneath the articular cartilage as a result of change in forces in the area.

From this point we can turn to consider the forces responsible for the stability of the knee joint, especially in relation to lateral abduction of the tibia. Lateral stability of the knee joint in full extension is dependent almost entirely on the anterior cruciate ligament. If all other ligaments and tendons are dissected away from the knee joint its medio-lateral stability remains unimpaired until the anterior cruciate ligament is cut. This is also the structure which prevents hyperextension of the knee joint, a condition that accompanies knock-knees in many infants.

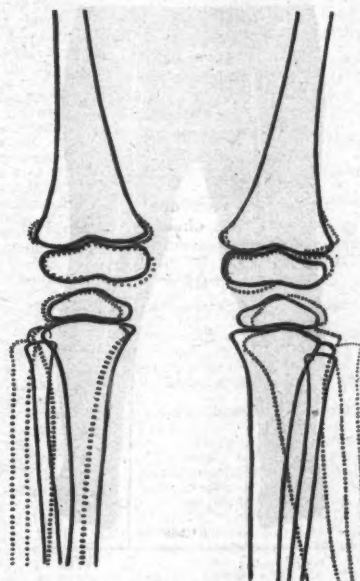


FIGURE 1.

Tracing of bone outlines as revealed by X-ray examination of child with straight legs (continuous line) and child with knock-knees (interrupted line). The shafts of the femurs coincided.

The following hypothesis is advanced to explain the relationship of the anterior cruciate ligament to knock-knees.

When the young infant first stands, he does so with his feet wide apart; the broad base assists him to obtain the maximum stability. For a year or so after he starts to walk the feet are also placed wide apart when walking. In this stance, although the weight is borne on the two feet, gravity is acting vertically downward, creating a parallelogram of forces with a medially directed component force operating along the line of each leg (Figure 2). Thus in every infant and young child who stands with his feet wide apart there is a vertically directed force that tends to pull the legs medially. This force probably operates along the whole line of the leg, but could exert its most significant effects at the joint where the structures are not rigid. The result of this force would be to adduct the lower ends of the femur—that is, to bend the lower extremity inwards at the knee joint. This movement will be resisted by the anterior cruciate ligament. In many children the "strength" of the ligaments is enough and the

legs remain straight; in others the ligaments "stretch" and knock-knees result. The use of the words "strength" and "stretch" seemed unbiological and called for a study of the structure of the anterior cruciate ligament under various conditions.

STRUCTURE OF THE ANTERIOR CRUCIATE LIGAMENTS IN RELATION TO FUNCTION.

Histology of the Cruciate Ligaments.

A study was made of the histology of the cruciate ligaments from rats and guinea-pigs in various stages of development, from human fetuses, neonatal infants and young children.

Morphologically the cruciate ligaments consist of collagen fibres arranged in parallel longitudinal bands with cells interspersed between the fibres. In the immature animal the fibres and cells are arranged in alternate rows, the space occupied by each depending on the degree of

It was noted that as the animals and human fetuses and infants grow older, the columnar arrangement of the cells is lost owing to the progressive widening of the fibres. In the most immature forms the cells are spherical with easily recognized structure; in the mature animal and in children the cells are compressed into lamella-like objects between bands of fibres.

Growth of ligaments occurs in two directions. Wolbach (1933) has shown that the collagen fibres are deposited by the fibroblasts, and continued activity of the cells results in an increase in the width of the ligament. Cessation of activity by the fibroblasts is followed by arrested growth of the ligament in width.

Growth in length is brought about by the cells which move out from the cartilage or bone to which the ligament is attached.

Effect of Nutrition on the Quality of Fibrous Tissue.

The studies of Wolbach and his collaborators (Wolbach and Howe, 1926; Wolbach, 1933; Wolbach and Bessey, 1942) suggest that the nutritional states of the animal may affect the quality of ligaments. A number of animal experiments were made to test this point.

Low Protein Intake.

Month-old black and white rats were used in this experiment. Litter mates were divided into three groups that were fed as follows. Group I: An otherwise balanced diet containing casein (10%) as the source of protein; Group II: a balanced diet containing casein (25%) as the source of protein; but the food intake was restricted to that necessary to limit the daily weight increment to that of the litter mate in Group I; Group III: a balanced diet containing casein (25%) fed *ad libitum*. (The diets in Groups I and II were made isocaloric by adjustment of the sugar content.)

The rats were killed after ten weeks and the ligaments were studied macroscopically and microscopically. Differences could not be detected in the ligaments from rats in Groups I and II. Those from the rats in Group III were larger than from the other two groups, but did not differ microscopically. The weights of the rats in Groups I and II were almost stationary throughout the experiment. The low protein intake of Group I prevented growth, and the food intake of Group II was limited so that the weights of these rats remained the same as that of the litter mates in Group I.

The results of this experiment suggest that retardation of growth is also reflected in the size of the cruciate ligaments (as might be expected), but that a low protein diet did not affect the structure (as seen microscopically) of such ligamentous tissue as was formed.

Level of Ascorbic Acid in the Diet.

Acute Scurvy.—Guinea-pigs weighing between 230 and 250 grammes were placed on a scorbutic diet. Signs of scurvy developed after the animals had been on the diet for about three weeks. The experimental animals and the controls were killed at intervals from the fifteenth day of the experiment onwards. On macroscopic examination the cruciate ligaments appeared softer, and when weights were applied they broke in the scorbutic animals before they did in the control animals with the same weight. This supports the observation of Wingate Todd (1939), who found that the ligaments had been so weakened in scorbutic animals that "it was difficult to skin the animal without tearing the ligaments", and that "the head of the animal was apt to be torn from the vertebral column". On microscopic examination the ligaments in the scorbutic pigs differed from those in the controls. In the normal animals the cells were compressed between fibres without a space between the cells and the fibres. In the scorbutic animals the cells were larger and surrounded by a clear space which appeared to be structureless.

Chronic Scurvy.—Chronic scurvy was produced by giving the animals 0.5 milligramme of ascorbic acid daily. The guinea-pigs were killed at six weeks. The cells in the ligaments of the experimental animals stood out with clear spaces between them and the surrounding fibres, similar to the appearance in the animals with acute scurvy.

The changes noted in the animals with acute and chronic scurvy confirm the observations of Wolbach (1933): the structure of affected ligaments is abnormal.

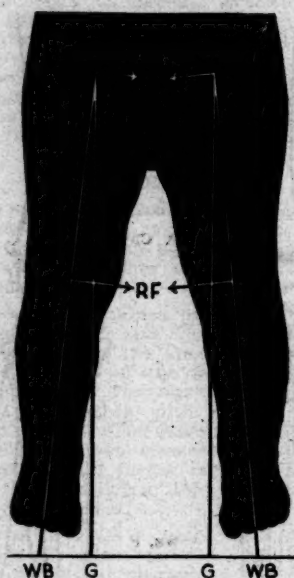


FIGURE II.

Showing resultant force (RF) of parallelogram of forces around legs of infant standing with feet wide apart. WB, direction of weight bearing; G, direction of action of gravity.

maturity of the animal—that is, on the amount of tension likely to be placed on the ligaments. At birth the rat is much less mature than the guinea-pig. The latter runs about actively almost immediately after birth, placing as much strain on the ligaments then as at any future age. The young rat does not move for some days after birth; then it crawls for about a week and does not run about actively until about fourteen days old.

In the cruciate ligament of the newly born rat the space occupied by the column of cells is about equal to that occupied by the fibres. In the newly born guinea-pig the ratio of cells to fibres is about 1:4—a condition not reached in the rat until it is fourteen to eighteen days old, by which time it is running about.

The human material showed the same range of relationship between the spaces occupied by the fibres and cells. In the youngest fetus examined, which was of about three months' gestation, the ratio of the width of cells to that of fibres was about 3:2. Thereafter the thickness of the fibres increased rapidly until at birth the ratio was found to be about 1:5.

Effect of Vitamin D Deficiency on the Structure of Ligament.

Rickets was produced with an appropriate diet in a group of black and white rats. The cruciate ligaments of the experimental rats were on macroscopic and microscopic examination identical with those from the control animals.

DISCUSSION.

The function of ligamentous tissue is to stretch when a force is applied and to recover when that force is removed. If a ligament increases unduly in length, it has apparently failed to return to its original length after the application of a force. The studies reported here suggest that in some at least of the infants with knock-knees the anterior cruciate ligament has failed to recover its original length after being stretched by the medially directed component of the parallelogram of forces. The stretching of various ligaments as the result of unusual and abnormal postures has been stressed by Macnamara (1949, 1952).

What causes the ligaments in some children to fail to recover after stretching is the important question. The histological studies suggest that the degree of maturity may be a factor. The overweight infant, seven to nine months of age, who persists in standing for long periods is probably placing a much greater strain on the cruciate ligaments than they are ready to bear.

Inheritance may play a part in some children. It is a frequent story that one or both of the parents of a child with knock-knees also have knock-knees; on occasions the information has been offered that some of the grandparents were similarly affected. So far as I am aware, studies have not been made of this aspect of the problem. Just as the rate of maturation of other structures in the body—for example, the endocrines—seems to be genetically influenced in some children, so it is conceivable that the rate of maturation of the cruciate ligaments could be genetically determined. Children of normal weight who stand at the same age as other children, but in whom the cruciate ligaments are immature because of slow development, may develop knock-knees.

We have already seen that the quality of diet, particularly the vitamin C content, can affect the structure of ligaments in experimental animals. Wolbach (1933), who studied collagen formation in scorbutic animals, believed that in this condition collagen is not deposited by the fibroblasts in ligamentous tissue, but that the space around the cells is filled with a substance that has not the characteristics of collagen. A group of Russian workers (Bressler, Finogenov, and Ya Frenkel, 1950) has suggested that during growth a soluble precursor of collagen is deposited, which later is converted into the insoluble form. Until this conversion takes place it is conceivable that this protein could be mobilized into the tissue pool. Any adverse changes in protein metabolism may lead to the withdrawal of the protein in the soluble precursor form. Is this the explanation of the spaces seen around the cells in ligaments in certain dietary deficiency studies? It is noteworthy that these changes are seen only in immature animals; they do not appear after maturity. The work of Neuberger, Perrone and Slack (1951) and of Perrone and Slack (1951) suggests that in the mature animal the protein which has been deposited remains in a state of relative metabolic inertia for long periods.

A great deal more information is required about the metabolism of ligamentous tissue before these questions can be answered.

SUMMARY.

1. A longitudinal study was made of the development of knock-knees and Harrison's sulcus and of the condition of the teeth in 100 children during the first ten years of life.

2. No correlation was found between the occurrence of knock-knees, Harrison's sulcus or dental caries and the occurrence of radiographically evident rickets in infancy.

3. A study was made of the changes in the alignment of the bones of the knee joint in children with knock-knees and compared with the alignment in children with straight legs.

4. An hypothesis is developed of the tensile strength of the anterior cruciate ligament as the main aetiological factor of knock-knees.

5. Studies were made of the effects of protein-deficient diets, vitamin C deficiency and vitamin D deficiency on the tensile strength of ligaments.

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WHIPLASH DERMATITIS PRODUCED BY THE COMMON ROVE BEETLE.¹

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THERE is a Spanish word *fuetazo* meaning a whiplash, and in Ecuador the *fuetazo* beetle is known to produce skin lesions very aptly called whiplash or *fuetazo* dermatitis. It is an exactly similar condition quite common in this country that I am going to describe.

My interest in the blistering rove beetles began in December, 1950. There was an early summer in Wagga following severe floods earlier in the year, and I had seen several patients suffering from the lesions which I shall describe—lesions not quite like anything I remembered seeing before. There was a long narrow weal (usually two or three inches long by half an inch wide), something like that made by a burn on the edge of a stove. This weal

¹Read at a meeting of the Federation of Country Local Associations in March, 1953, at Orange.

was at first purplish-red, but became covered by a crop of very fine blisters and surrounded by a further half an inch of hyperemia. I think that I took the first lesion to be very acute erysipelas, but was surprised to find a day or two later that it had not spread. I then inquired about abrasion with a plant, thinking of an allergy such as one may get with the *Rhus toxicodendron*, but there was no such history. Two other similar cases suggested the same theories, which were not found to be tenable. The



FIGURE I.

Pederus cruenticollis, a common rove beetle. It derives its name from the orange-coloured neck. There is a stripe of the same colour across the abdomen. The habit of running with its pointed tail cocked up is typical of the rove beetle.

uncertainty as to the cause was reflected in the failure of treatment—penicillin and antihistaminics had no effect though the lesions gradually got better in a week or ten days. The lesions were all on exposed parts and, as I now realize, within reach of the hand. My interest was sharpened when I myself developed such a lesion which ran a typical course.

FIGURE II.
Pederus cruenticollis.

I cannot say what made me associate these lesions with an insect—the suggestion may have been made by one of the victims; but about Christmas time on a hot night I noticed among the assorted creatures under a veranda light a little ant-like creature distinguished by two things—the orange colour of his neck and part of the body, and his habit of running about with the tail cocked up in the air. This latter habit I now know to be typical of all the rove beetles; but it suggested to the amateur a similarity to the scorpion and marked him out as a potential criminal.

I sent one of these insects to the Australian Museum, asking for information, and particularly asking whether the late Keith McKeown, F.R.Z.S., identified the insect

as one of the staphylinid or rove beetles, *Pederus cruenticollis*, and added that he could find no record of their causing skin troubles. There the matter might have ended, especially since my wife and I, greatly daring, had each crushed one of these beetles on the skin and produced no effect at all. However, Mr. McKeown, an enthusiast, had remembered my query, and six months later sent me an account by the zoologist Beebe of an excursion to Venezuela. Those who went encountered large numbers of tiny but highly-coloured rove beetles, which produced "ugly welts and scarlet wheals over face and arms suggestive of some loathsome disease. Apparently if a female beetle ran across the exposed skin she exuded an oily substance which was highly irritating and easily spread".

The resemblance to our lesions was inescapable, especially in the use of the word "wheals". McKeown evidently thought so too, for in the following December he published in this journal a brief account of our correspondence and a few notes on the habits of rove beetles and the effects produced by other species of *Pederus* in other parts of the world. His interest led me to repeat the experiment, and this time the result was all too successful. I had been working in the garden and sweating, and having coaxed a beetle on to my arm I crushed it well into the skin on the front of my left elbow. The choice of site was unfortunate; in twelve hours there were burning pain and erythema in the typical whiplash form, which over the next few days produced the typical patch of blistering with deep pain. The blistering lasted a full six days before starting to dry up, and the arm was painful for over two weeks. I reported this trial to McKeown and suggested that the blistering agent might possibly be cantharides.

I was indeed sorry to read some months ago of the death of Keith McKeown. His ready interest and his anxiety that this little discovery be made public stimulated me to try to round it off and record with photographs what I had observed.

Historical Survey.

Few publications earlier than 1935 mentioned vesicating beetles other than those of the Meloid family, of which the best known is the Cantharis or Spanish fly. It is from this beetle that the pharmacopoeial cantharides comes. However, in 1926 Pavlovsky and Stein, of the Military Academy of Medicine in Leningrad, published experiments in which they took saline emulsions of different parts of the beetle *Pederus fuscipes* and produced blistering when they rubbed it on the skin. This beetle is said to cause much suffering among fishermen and herdsmen in the Volga valley. Their experiments suggested that it was the actual blood of the insect which contained the blistering substance, and they did not note any difference in the action of male and female beetles in this respect. Since then there have been many references to blistering by staphylinid or rove beetles in many countries, particularly tropical and sub-tropical. A third group, Sessinia, a coconut beetle of the family Edemeridae, is found in the mid-Pacific and causes blistering.

Cantharides.

Most, but not all, authors consider that the toxic principle is not cantharidin. Cantharidin blisters are said to appear in two or three hours and to become confluent. *Pederus* blisters seem to appear in from twenty-four to seventy-two hours according to the severity. They do not become confluent to any extent and take many days to dry up.

Distribution.

Various rove beetles are known in every continent. In Africa they are the cause of Nairobi eye. They cause dermatitis in the Volga basin. Earle (1949) gives a full account of an exactly similar condition in oil-drilling plants in Ecuador, the *fuelazo* dermatitis.

As far as Australia is concerned, I have not found any previous recognition of this condition here. Professor J. Burton Cleland, of Adelaide, who made a study of Aus-

tralian insects of medical importance and reviewed the subject repeatedly over many years, made no mention of it. The *Agricultural Gazette of New South Wales* in 1942 mentioned *P. cruenticollis* as being particularly prevalent that year, printed a photograph of the beetles and said "growers . . . may be assured that no injury can result from their presence". Although the writer may have meant injury to plants there was no suggestion that they might have caused injury to the grower.

The insect himself has been found all over eastern Australia as well as in the Northern Territory and South Australia. The Australian Museum has received specimens from both coastal and inland areas. The beetle is a

On the first area (dry normal skin), painless erythema appeared in twenty-four hours, becoming increasingly touchy, but showing definite blistering only after four days; the area was dry, scaly and scarcely tender in six days.

On the second area (hot moist towel applied), erythema appeared in twenty-four hours with tenderness and deep pain; the condition went on to fine blistering in three and a half days; aching pain was present till the fifth day, and tenderness to the seventh day.

On the third area, from which grease had been removed with petrol and soap and water, erythema appeared in



FIGURE III.

Three and a half days after crushing of rove beetle on the arm: central zone moist creamy colour, outer zone vivid erythema.

scavenger feeding on other insects and on decaying animal and vegetable matter. It breeds in the earth and probably emerges in swarms. Although it is almost always seen scuttling about on the ground, it is probable that it can fly, as it has short but well developed wings. It is most prevalent in the summer months, and is usually to be found underneath vegetation where the sun has not been able to dry the earth; in the garden under tomato plants, and where the grass meets concrete paths or steps are favourite spots; also, I believe, it is often found in the wool picked up from the carcass of a dead sheep.

Experimental investigation.

I have allowed the beetles to crawl on the skin and have held a live beetle firmly against the skin without producing any blistering. On the other hand, I think that the slightest injury to the beetle on the skin surface may cause some degree of skin irritation.

For the purpose of this investigation I produced blistering on three areas by crushing and smearing a beetle, as follows: (i) on the normal dry skin on a warm day; (ii) on the normal skin after applying a hot moist cloth to stimulate sweating; (iii) on a skin area which had been swabbed with petrol and then washed with soap and water to remove grease from it.

The lesions produced were of increasing severity in that order.



FIGURE IV.

Five and a half days: whole area covered by fine blisters.

twelve hours; the first blistering appeared in twenty-four hours. At the end of three days the area was thoroughly blistered and extremely painful. From the third to the seventh day it was very painful on standing on the affected leg, and only on about the tenth day did the blisters dry off and cease to be tender.

This train of events is unlike the effect produced by cantharidin, in being slower in onset and more prolonged. The experiments bear out the suggestion that non-greasy skin is the more susceptible. The blistering produced after swabbing the area with petrol and then washing it with soap and water was very much more severe than that produced on the others.

Although the palms of the hands are said to be rarely affected, it is probable that the blistering substance may be rubbed in the eyes or conveyed to the penis by the fingers and there set up severe and atypical lesions. Earle (1949) describes cases with intense chemosis and oedema of the eyelids and occlusion of the tear-duct. He believes that corneal ulceration does not occur.

Contact lesions can occur when two skin surfaces are in contact with one another. (It has been suggested that the fluid from the developed vesicles is itself vesicant.) I have seen such a lesion in the cubital fossa, and in that case it is probable that the patient went to sleep with the elbow flexed immediately after being contaminated by a blistering beetle.

Prophylaxis.

Since it is possible that this insect affects more people than, say, the better known red-backed spider, it is important that it should be recognized as dangerous. Insects should not be swatted or squashed on the skin.

Treatment.

If a rove beetle is known to have been rubbed on the skin, the area should be washed with soap and water without delay, and perhaps swabbed with a fat solvent such as petrol or ether. I tried this on part of one of my experimental lesions, and it appeared to reduce the blistering a good deal.

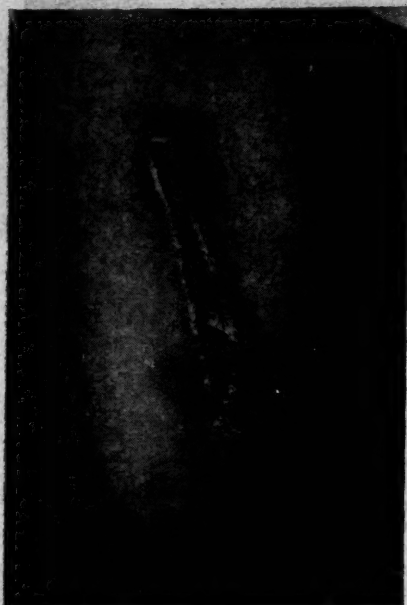


FIGURE V.

Seven and a half days: blisters have dried over scaly area.

When blistering has actually occurred, it has been thought best to preserve the blisters intact to avoid secondary infection. Earle recommends the use of "Butesin Plerate" ointment as a dressing and alkaline irrigations for the eyes if they are affected. It is possible that rupturing the vesicles may remove remaining traces of the blistering substance.

Summary.

1. Observations were made on whiplash dermatitis not previously described in Australia. The rove beetle *Pederus cruenticollis* is definitely incriminated.

2. Similar dermatitis due to other members of the genus *Pederus* is known in most sub-tropical and temperate areas.

3. Observations are made on experimentally produced lesions.

4. Measures for prophylaxis and treatment are suggested. The insect should be better known, and the danger of swatting crawling insects should be recognized.

Acknowledgements.

I am indebted to the late Mr. Keith McKeown, Mr. A. Musgrave, and Miss Nancy Adams, of the Australian Museum, Sydney, for entomological help, and to my

colleagues Lewis Ratner and John Oliver for excellent colour transparencies used in the original lecture.¹

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THE MORTALITY IN AUSTRALIA FROM CANCERS OF THE ALIMENTARY SYSTEM.

By H. O. LANCASTER,

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THE mortality in Australia from all cancers, from those peculiar to the female or to the male, has already been described (Lancaster, 1950, 1951 and 1952). The description of cancer mortality experience in Australia is continued here by considering cancers of the alimentary tract.

The Masculinity of the Cancer Death Rates by Site.

The Australian experience for the years 1931 to 1940 has been used to compute the masculinity of the cancer death rates for various sites at those ages with an appreciable mortality. The masculinity is defined here as 100 times

TABLE I.

The Masculinity of the Cancer Death Rates¹ in Age Groups (Years).

Site or Type of Cancer.	Years.				
	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.
All cancers	53	60	106	188	184
All cancers except those peculiar to the sex ..	127	152	176	174	149
Buccal	336	540	774	944	682
Stomach and duodenum ..	164	203	218	198	148
Intestines	87	84	96	92	82
Liver	58	90	76	84	79
Rectum and anus	98	98	146	176	168
Pancreas	179	148	134	122	124
Oesophagus	109	207	369	365	320
Respiratory	249	256	331	387	337
Skin	250	304	215	215	160

¹ Australia, 1931 to 1940.

the male mortality rate divided by the corresponding female mortality rate. For all cancer the female rates are higher under the age of sixty-five years, but above this age the male rates are the higher. This change in the masculinity from low to high with increase in age is due to the relatively great importance of the cancers peculiar to the female at the younger ages. When only those cancers common to both sexes are considered, as in the next line of Table I, then there is a high masculinity at every age above thirty-five years. For individual cancers the masculinity may be very high indeed; for example, at ages sixty-five to seventy-four years the masculinity of cancers of the buccal cavity is over 900. The masculinities are moderately high for the oesophagus, rather lower for the

¹ At the meeting in Orange where this paper was read and illustrated with colour photographs, many practitioners from all over New South Wales recognised these lesions as something they had frequently seen and puzzled over.

TABLE II.
Death Rates in Australia for the Years 1931 to 1946 from the Cancers of the Alimentary System.

Age Group. (Years.)	Deaths per Annum per Million from Cancer.															
	All Forms.		Buccal.		Oesophagus.		Stomach and Duodenum.		Intestines.		Rectum and Anus.		Pancreas.		Liver.	
	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.
0 to 24	31	28	1	1	0	—	0	—	3	2	1	—	0	—	1	—
25 to 34	98	130	4	1	1	—	11	9	15	13	5	5	2	2	3	3
35 to 44	216	596	16	5	5	5	77	47	44	62	20	21	15	3	10	13
45 to 54	1106	1614	70	13	39	19	341	168	138	164	68	70	51	34	46	51
55 to 64	3445	3253	301	39	179	48	1059	437	404	423	201	138	151	112	135	177
65 to 74	8574	6072	794	84	428	117	2603	1348	975	1063	434	246	232	230	323	356
75 and over ..	14085	10539	1446	212	606	189	3679	2458	1698	2077	683	407	390	315	533	570
All ages	1123	1069	99	14	51	16	325	184	135	159	61	43	40	32	43	56

TABLE III.
Trends of the Mortality in Australia from Cancer of the Buccal Cavity.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.	All Ages.
1908 to 1910	M.	2	3	32	228	580	1154	1545	114
1911 to 1920	M.	1	3	40	219	559	1004	1457	113
1921 to 1930	M.	1	4	19	121	427	825	1462	100
1931 to 1940	M.	1	4	16	70	301	794	1446	99
1941 to 1945	M.	0	3	13	60	158	538	1223	76
1908 to 1910	F.	1	1	5	16	65	129	190	12
1911 to 1920	F.	1	3	6	17	32	74	215	10
1921 to 1930	F.	1	2	4	20	39	79	164	11
1931 to 1940	F.	1	1	5	13	39	84	212	14
1941 to 1945	F.	0	1	5	12	33	88	245	17

TABLE IV.
Trends of the Mortality in Australia from Cancer of the Oesophagus.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.	All Ages.
1908 to 1910	M.	0	0	7	44	120	206	199	20
1911 to 1920	M.	0	0	3	49	143	242	270	26
1921 to 1930	M.	0	1	5	53	205	345	408	41
1931 to 1940	M.	0	1	5	39	179	428	605	51
1941 to 1945	M.	0	0	7	29	134	383	655	49
1908 to 1910	F.	0	0	5	9	25	22	76	4
1911 to 1920	F.	0	2	6	19	28	43	73	7
1921 to 1930	F.	0	0	4	27	49	95	127	12
1931 to 1940	F.	0	0	5	19	48	117	189	16
1941 to 1945	F.	0	0	3	12	48	130	177	18

TABLE V.
Trends of the Mortality in Australia from Cancer of the Stomach and Duodenum.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.	All Ages.
1908 to 1910	M.	1	14	114	379	1034	2131	1843	196
1911 to 1920	M.	1	17	104	435	1197	2039	2255	231
1921 to 1930	M.	1	14	93	441	1231	2623	3191	301
1931 to 1940	M.	0	11	77	341	1059	2603	3679	325
1941 to 1945	M.	0	11	51	270	907	2192	3663	303
1908 to 1910	F.	2	14	73	220	686	1233	1732	123
1911 to 1920	F.	1	13	68	249	630	1405	1910	137
1921 to 1930	F.	0	11	56	229	608	1512	2311	166
1931 to 1940	F.	0	9	47	168	487	1348	2433	184
1941 to 1945	F.	1	9	35	138	430	1270	2451	196

TABLE VI.
Mortality in Australia from Cancer of the Intestines.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.	All Ages.
1908 to 1910	M.	1	8	39	107	227	580	886	62
1911 to 1920	M.	3	10	33	114	302	611	798	68
1921 to 1930	M.	2	13	43	130	351	884	1275	100
1931 to 1940	M.	3	15	44	138	404	975	1693	135
1941 to 1945	M.	2	13	44	142	385	1032	2055	167
1908 to 1910	F.	2	4	61	121	321	689	708	63
1911 to 1920	F.	2	12	51	148	334	708	1025	77
1921 to 1930	F.	2	13	55	183	398	835	1661	114
1931 to 1940	F.	2	13	62	164	423	1063	2077	159
1941 to 1945	F.	3	11	63	169	423	1050	2185	186

TABLE VII.
Mortality in Australia from Cancer of the Rectum.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.	All Ages.
1908 to 1910	M.	0	7	18	46	114	259	254	25
1911 to 1920	M.	0	6	13	47	156	272	400	32
1921 to 1930	M.	1	6	21	58	174	335	545	43
1931 to 1940	M.	1	5	20	68	201	434	683	61
1941 to 1945	M.	0	4	20	63	207	501	756	70
1908 to 1910	F.	0	4	25	52	126	280	240	25
1911 to 1920	F.	1	6	19	51	125	237	377	28
1921 to 1930	F.	0	6	16	52	126	249	389	32
1931 to 1940	F.	1	5	21	70	133	246	407	43
1941 to 1945	F.	1	5	25	65	149	313	464	55

TABLE VIII.
Trends of the Mortality in Australia from Cancer of the Liver.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over.	All Ages.
1908 to 1910	M.	4	7	46	145	395	900	982	84
1911 to 1920	M.	1	10	29	141	382	821	997	84
1921 to 1930	M.	2	6	17	81	248	538	747	62
1931 to 1940	M.	1	3	10	46	135	322	532	43
1941 to 1945	M.	1	2	7	39	109	251	441	38
1908 to 1910	F.	4	9	46	137	501	1013	1277	90
1911 to 1920	F.	2	9	45	170	456	867	1118	91
1921 to 1930	F.	1	6	27	106	300	614	959	74
1931 to 1940	F.	1	3	18	51	177	385	670	56
1941 to 1945	F.	1	3	12	38	134	355	500	62

stomach and duodenum. For cancers of the intestine and of the liver the rates are higher in the female. The rates are again higher in the male for cancer of the rectum, as for cancers of the pancreas, of the skin and of the respiratory system. In some of these cases a plausible explanation can be given; irritation by pipes and higher rates for syphilis may have caused higher death rates from cancer of the mouth in the male. Many believe that the higher consumption by males of irritant fluids, such as alcoholic drinks, causes higher rates for cancer of the oesophagus in the male. However, although this may be so, it is difficult to suggest such a cause for some other cancers, such as those of the pancreas, which also have a high masculinity.

Alimentary Tract Cancer.

In Table II are given the death rates for Australia in the period 1931 to 1940 for individual cancers of the alimentary tract, so that each can be readily related to the total cancer mortality. The important site in this group is evidently the stomach. The intestines and then the buccal cavity follow in order of importance.

Cancer of the Buccal Cavity.

"Cancer of the buccal cavity" is a rather unsatisfactory rubric in the "International List of Causes of Death". The cancers included are cancer of the lip and cancer of the tongue. The other sites listed as primary in the death certificates have probably been invaded from one of these two sites. Thus it seems that many cancers, certified as being of the jaw, are so only by extension from a primary site in the tongue or lip. Perhaps a similar consideration applies to the cancers certified as being of the mouth, the floor of the mouth or palate. Other primary sites included are the salivary glands, excepting the parotid, which is included among "miscellaneous and unspecified" sites. Here I have included cancer of the pharynx among the cancers of the mouth, although for the second to fourth revised versions of the International List it also was included in the miscellaneous group.

The death rates in Australia from buccal cancer are set out in Table III and in Figure 1. Buccal cancer is evidently a disease of the aged and predominantly of the male. At each age there has been a pronounced fall in the rates over

the years of the survey. Thus, at ages forty-five to sixty-four years the mortality in the period 1941 to 1945 is only about one-quarter of that in the two earliest periods. Difficulties arise when we attempt to assign these improvements to individual cancer sites. Thus there has been a great fall in deaths from cancer of the jaw, but as has already been mentioned, these cancers may have been really cancers of the tongue or of the lip primarily. The fall may be due merely to changes in the precision of diagnosis. On the other hand, the falls in the death rates from the whole group are not in doubt, and it seems reasonable to conclude that there have been considerable falls in the death rates from cancers of the tongue and of the lip. Improved hygiene of the mouth, improved and more general treatment of syphilis, and earlier and more effective treatment of the cancer itself are possibly the most important factors in these declines in the death rates.

CANCER OF THE BUCCAL CAVITY

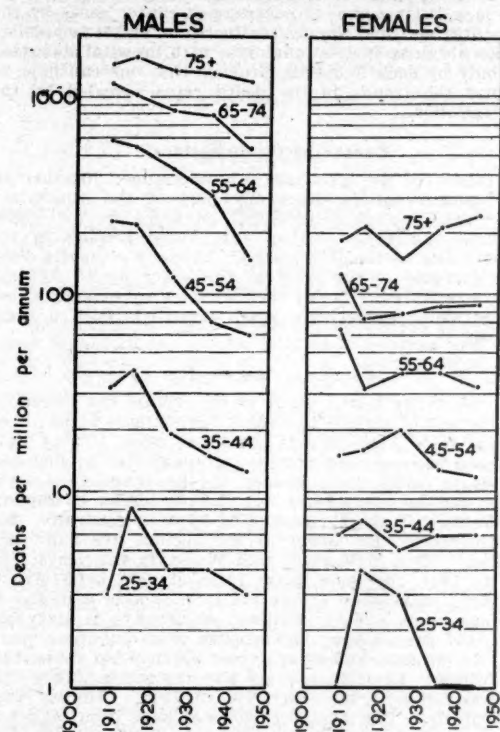


FIGURE I.

The trends in mortality in Australia from cancers of the buccal cavity.

Cancer of the Oesophagus.

In Table IV and Figure II are given the death rates from cancer of the oesophagus. The rates at ages forty-five to fifty-four years show some decline. In fact, the more recent rates are only one-half of the highest attained. Improvement is also to be noted in the next age group; but at ages over sixty-five years the rates have risen. In the period from 1941 to 1945 the Australian rates are slightly below the English rates at all ages. The rates for England and Wales also have shown a decline, which the Registrar-General believes is associated with a lower consumption of irritant fluids in the recent past.

Cancer of the Stomach and Duodenum.

Cancers of the stomach and duodenum are here treated together. In fact, cancer of the duodenum is so uncommon that it makes little difference whether it is included or

not, as has been pointed out in the report of the Registrar-General of England and Wales. Cancer of the stomach and duodenum is first in frequency among cancers in both sexes if deaths in the life-table population are taken as the criterion of frequency; but in the actual population in the

CANCER OF THE OESOPHAGUS

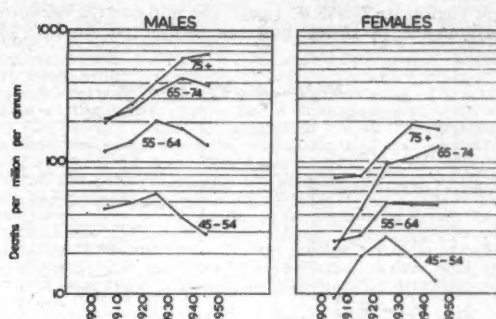


FIGURE II.

The trends in mortality in Australia from cancers of the oesophagus.

period from 1931 to 1940 cancer of the breast was the commonest cancer in females. At higher ages the rates have been relatively constant since 1920. At ages below sixty-five years there has been some improvement in both

CANCER OF THE STOMACH AND DUODENUM

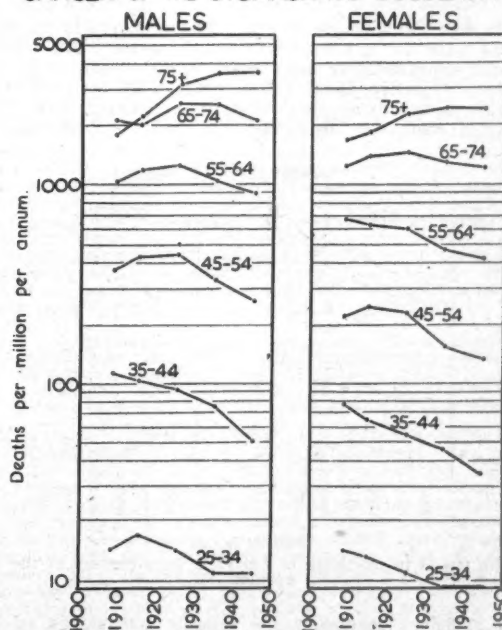


FIGURE III.

The trends in mortality in Australia from cancers of the stomach and duodenum.

sexes. The rates for males are almost double those for females up to the age of seventy-five years, and are approximately 50% higher at ages over seventy-five years. In the absence of any large series of published cases covering the Australian experience, it may be useful to note the

findings of Harnett (1952) on the survey of cancer in London organised by the British Cancer Campaign in the years after 1935. This survey included practically all the main hospitals in the London area—indeed, all the voluntary and London County Council hospitals and most of the special hospitals. Of the 15,201 patients with cancer, 1430 suffered from cancer of the stomach, and in 35 of these cases the cancer was recurrent. About 60% of the patients with cancer of the stomach were males. The site was the pyloric region in 33.5% of cases, the mid-gastric region or whole stomach in 20.4%, and the cardiac region in 8.1%,

was continued for over three months before he was referred on to a hospital for detailed examination. The symptoms on his first admission to hospital and the clinical findings are then recorded. Anaemia was commonly present. Achlorhydria was present in over 65% of cases. Remote metastases were present in 32% of cases, of which the great number were in the liver, other abdominal organs and the peripheral lymph nodes. The results of operative treatment may be noted. In a total of 470 patients with cancer of the pylorus, 163 partial or total gastrectomies were carried out with an operative mortality rate of 25%. Similar operative results are given for cancer of other gastric sites. For all gastric cancers the five-year survival rate was only 4.1%. For other details the original should be consulted.

A summary has been given here to show the sort of information that can be collected in a cancer survey—information which would have great scientific, clinical and administrative value. In Australia the only area where such a survey is close to realization is Melbourne, where there is a fairly complete coverage of cancer cases by the Cancer Registry and the Cancer Institute, and it is possible to reconcile these institutional data with the vital statistics. It is only by such long-term projects that one can hope to interpret the trends in the death rates revealed by the vital statistics.

Cancer of the Intestines.

As cancer of the intestines I have grouped together all those cancers arising from any part of the alimentary tract, from the duodeno-jejunal juncture to the recto-sigmoidal juncture, together with those arising in the appendix and in the peritoneum. There is evidently some slight increase in the rates at the lower ages. At ages fifty-five to sixty-four years the increases are moderate; but at ages above seventy-five years there has been a great increase.

Cancer of the Rectum.

The mortality from cancers of the rectum has increased, over the age of seventy-five years the increase being three-fold for males, but less at the lower ages. There have also been increases for females, although less pronounced. The death rates from cancer of the intestine (except rectum and duodenum) are only slightly higher in England and Wales than the corresponding rates in Australia. But the differences for cancer of the rectum are quite pronounced. Thus in England and Wales, in the years from 1940 to 1944, the male death rates at ages thirty-five to forty-four years were 36 per million; at ages forty-five to fifty-four years, 126 per million; at fifty-five to sixty-four years, 457 per million; at sixty-five to seventy-four years, 1215 per million; and at ages over seventy-five years, 1741 per million. These figures are all very much higher than the Australian figures for 1941 to 1945. Similar comparisons show that the English rates have been higher at every age in every period than the Australian rates.

Cancer of the Liver.

There has been a great decrease in the rates of mortality from cancers of the liver. It seems likely that this is due to more precise diagnosis in later periods, whereby secondary cancer of the liver is referred back to a primary site.

Summary.

The cancers in Australia of the alimentary tract and liver have been considered for five periods over the years from 1908 to 1945. Except for cancers of the intestines and of the liver, all these cancers have a heavier incidence in the male sex. Declines in the death rates are reported for cancer of the buccal cavity and of the liver, but pronounced increases have occurred in the death rates from cancers of the oesophagus. The death rates from cancer of the stomach and duodenum have remained fairly constant at the higher ages since 1920, with some reductions at the lower ages. Death rates from cancers of the intestine and of the rectum have increased. The increase in the other cancers is greatly in excess of what can be explained by a

CANCER OF THE INTESTINES

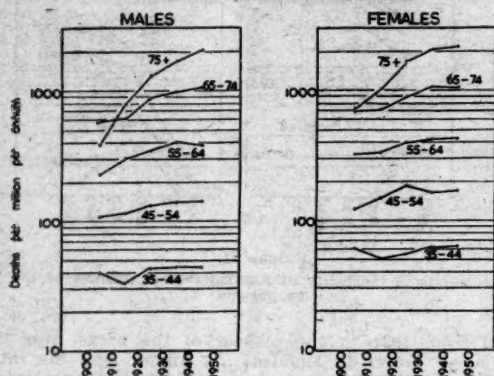


FIGURE IV.

The trends in mortality in Australia from cancers of the intestine (excluding the duodenum and rectum).

and it was unknown in 38.0%. The proportions in the various sites did not vary between the sexes. The mean age was approximately sixty years in either sex, and the standard deviation about eleven years. An attempt was made to gather data on relevant past history and habits, but it is clear that such questions had not been asked

CANCER OF THE RECTUM

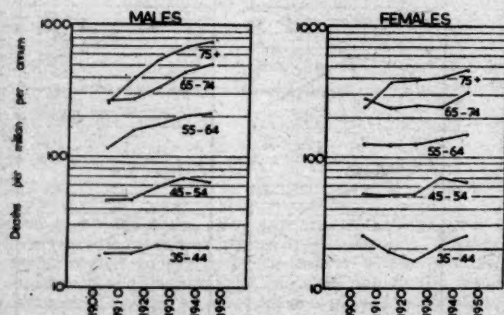


FIGURE V.

The trends in mortality in Australia from cancers of the rectum.

with sufficient regularity for reliable conclusions to be drawn. Such questions would be directed to dental condition, addiction to alcohol, addiction to hot foods and sauces, hasty eating and long-continued dyspepsia. Twenty of the 193 patients tested yielded a positive Wassermann reaction. The first symptom was pain in 48% of cases, vomiting in 11%, vague dyspepsia in 17%, asthma in 11%, anorexia in 6% and haematemesis in 1.5%. Over one-half consulted a doctor within three months of their first symptom. Usually the patient was referred to a hospital; but in about one-fifth of the cases symptomatic treatment

transfer of cancer of the liver to the primary site in the later periods. The survey of cancer in London is briefly mentioned as a possible model for a survey in Australia.

Acknowledgements.

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Reviews.

Australia in the War of 1939-1945: Series I, Army: Volume II. Greece, Crete and Syria. By Gavin Long. Canberra: Australian War Memorial. Sydney: Angus and Robertson, Limited. Obtainable at all booksellers. 9½" x 6½", pp. 592, with 72 illustrations, seven maps in colour and about 80 sketch maps. Price: 25s.

"THIS volume is chiefly concerned with three short campaigns fought in the Middle East in the spring and early summer of 1941. In each of them a relatively large Australian contingent took part and in two of them an Australian commanded the main force in the field during a crucial phase. Never before had Australian political leaders been so closely involved in decisions affecting the conduct of military operations, nor had Australian military leaders borne such heavy independent responsibility in the field." So Gavin Long opens his first chapter and sums up the relevance to Australia of the phase of war described. However, the story is much more complicated than these sentences might imply. In each campaign other Allied forces were concerned, their commanders were superior to or subordinate to Australian commanders, and the politics of various nations constantly intruded themselves. As might be expected, political and military considerations often dictated opposing policies, not only in broad strategy but even in administrative detail. The political view mostly won, and commanders in the field were then sometimes left to cope with pretty problems not of their own choosing. The recorded result provokes our admiration for them and for the forces under their command, while not necessarily alienating our sympathies from the political leaders, who had to make major decisions under unenviable circumstances.

The expedition to Greece was primarily a British commitment, in which Australian and New Zealand forces were involved as the major part of the contingent, though not without the misgivings of their commanders, General Sir Thomas Blamey and General Sir Bernard Freyberg. The expedition was undertaken, Long states, partly with the object of establishing a front in the Balkans in cooperation with Greece and, it was hoped, Turkey and Yugoslavia, and partly because the British nations had a moral obligation to give substantial help to the hard-pressed Greeks; the prestige of the British Commonwealth was felt to be at stake. These considerations outweighed the objections of the military commanders on the spot. The Balkan front was not, of course, established. Long states that there seems at no time to have been sufficient good evidence to justify the hope entertained by Mr. Winston Churchill and his colleagues that Turkey and Yugoslavia would take effective steps towards combined action against attack by Germany. The Greek contribution was a mixture of great gallantry and dismal failure. Beyond doubt the Greek leaders and the Greek people were genuinely grateful; on that score the moral obligations of the British Commonwealth were more than met. Opinions differ on whether or not the expedition was necessary to maintain prestige else-

where, for example, in the United States. General Blamey considered the outstanding lesson of the campaign to be "that no reasons whatever should outweigh military considerations when it is proposed to embark on a campaign, otherwise failure and defeat are courted". As he saw it, failure was on military grounds inevitable. However, committed to the task, the Anzac Corps, as it was designated, acquitted itself with honour.

The loss of Crete is a sad tale relieved only by the bravery and resource of its defenders. The British force, especially the New Zealand component, sustained heavy casualties; although it is notable that the German loss was proportionately much heavier. The higher command seems to have been guilty of inertia in the preparatory stages; and General Freyberg, who was placed in command of the island almost at the last moment, had a thankless task. He came to Crete weary from a rearguard action in Greece; he inherited no comprehensive plan; he had to improvise a staff; many of his men were poorly equipped. Greater foresight on the part of General Wavell and his staff could have made these circumstances, and perhaps the outcome, different from what they were. The main consolation lies in the fact that the Germans' heavy losses apparently dissuaded them from undertaking a similar attack on Cyprus, and in the thought that the short unsuccessful action was probably less expensive than a long campaign of attrition would have been.

The operations in Syria were "a costly and wearing campaign, bitterly fought out against the troops, mostly mercenaries, of a former ally". It was marked by exasperating political complications, by a poor initial staff appreciation of the likely degree of French resistance, and by the infantryman's determination, physical strength and endurance—the main factor in the success of the operations. Like the expedition to Greece, the invasion of Syria was undertaken as "a political gesture"; but the political advisers on the Allied side misjudged the feelings of the Vichy French, who put up stout resistance that was especially bitter because of the Free French among the invaders. By taking over Syria it was hoped to forestall a German offensive in the Levant; but Hitler's invasion of Russia while the Syrian fighting was in progress indicates that the Syrian campaign was at least premature. Whether it was necessary at all must remain a matter of opinion.

The historian's task is to divine and interpret the pattern in history, a fabric of seemingly self-woven threads. The task is never harder than when the threads move swiftly and conflictively into the knotted tangle of war, but in this volume Gavin Long has essayed it with notable success. Perhaps the outstanding feature of his writing is the skill with which he combines in the one narrative the broadest political and military aspects of a campaign and the smallest, most human details of a particular action or of a particular man's gallantry. The whole story remains in perspective whether the subject of the moment is the British Prime Minister assessing the trend of world opinion, a weary New Zealand general gathering together the resources of an island to resist invasion, or a Western Australian farmer winning a Victoria Cross on a dark Syrian hillside.

Eden and Holland's Manual of Obstetrics. By Alan Brews, M.D., M.S. (London), M.R.C.P. (London), F.R.C.S. (England), F.R.C.O.G. Tenth Edition; 1953. London: J. and A. Churchill, Limited. 9" x 6", pp. 824, with 57 plates, 12 in colour, and 378 text figures. Price: 52s. 6d.

THE tenth edition of "Eden and Holland's Manual of Obstetrics" by Alan Brews makes its appearance five years after the previous edition and has been revised and brought up to date. This standard text-book presents the art and science of obstetrics according to the accepted principles of British practice. It is essentially a comprehensive text-book for the medical student preparing to qualify and a practical reference book for the general practitioner. The editor has preserved the format of earlier editions, but has deleted much out-of-date matter and added accepted new methods of treatment without increasing the size of the book.

The tendency to replace illustrations by X-ray plates wherever possible is a noticeable improvement. This is apparent in the sections on contracted pelvis and the diagnosis of *placenta praevia*.

The editor states modern views on the aetiology of toxæmia of pregnancy, and draws attention to the improved results achieved by strict antenatal care, correct diet and the prevention of excessive weight gain during pregnancy reported from the Women's Hospital, Sydney, by Hamlin (1953). The newer Stroganoff treatment of eclampsia combining injections of magnesium sulphate with morphine for sedation is detailed.

The routine method of abdominal palpation, as described, would not appear to be as systematic and comprehensive as that described by Windeyer in 1933 and widely employed in this country.

The conduct of "trial labour" is detailed in a practical manner and the warning is given that "a trial labour must not be allowed to degenerate into the mere passive contemplation of obstructed labour".

Among new concepts of treatment noted in this edition are: the role of conduction anaesthesia in labour; the use of dihydroergotamine and also intravenous pitocin drip therapy in primary uterine inertia; the discarding of dressings for the umbilical cord; reduction of acute inversion of the uterus by the hydraulic pressure method of O'Sullivan.

The conservative treatment of patients with *placenta previa*, when possible, gives improved results and is recommended.

It is timely advice these days to the student and young practitioner that manual removal of the placenta should not be lightly undertaken and is by no means devoid of risk.

The Principles of Line Illustration: With Emphasis on the Requirements of Biological and other Scientific Workers. By L. N. Staniland, A.R.C.S., D.L.C., A.R.W.A.; 1952. London: Burke Publishing Company, Limited. 3½" x 6", pp. 224, with 164 illustrations. Price: 25s.

WORKERS in most biological fields have constant need to make drawings both for their own records and for the illustration of papers. Those who are without natural aptitude in this direction feel at a disadvantage, but the author of this book considers that anyone, with practice and care, can make an accurate drawing, and the purpose of his book is to show how this may be done. In straightforward and readable fashion, he starts at the beginning and describes the various techniques involved in line drawing, all the while keeping in mind the needs of the tiro, and including a description of various aids to drawing for the benefit of those who are particularly lacking in a sense of proportion and shape. Separate chapters are devoted to the use of colour, to the preparation of graphs, diagrams and maps, and to lettering. No previous knowledge of the subject or aptitude for drawing is assumed. As the author is both a biologist and an artist, his book can be accepted as a sound and helpful guide for those who realize the value of line drawings in relation to their biological work, but have previously felt incapable personally of producing what was required.

Health Services for the Child. By Edward R. Schlesinger, M.D., M.P.H., with a foreword by Herman E. Hilleboe, M.D.; 1953. New York: McGraw-Hill Book Company, Incorporated. 9½" x 6½", pp. 422, with 12 text figures. Price: \$7.50.

This is, in essence, a text-book of public health practice covering those services which directly or indirectly affect child health. In the United States of America interest in the health and welfare of mothers and babies at the Federal level began with the creation of the Children's Bureau in 1912, in the Department of Labour; it was not until 1946 that the Bureau was brought under the same administration as the Federal Health Service. Even today, as one of the branches of the Department of Health, Education and Welfare, it operates as a separate unit, maintaining its interest in the promotion of the well-being of the children of the nation. However, at the State level action for the care of mothers and babies is in the State Health Departments. This pattern has been adopted from the United States of America into a number of countries of Central and South America.

It is a matter for debate whether the health services provided by the community for children should be separated from or remain an integral part of the general public health service. The British pattern and that of most of the European countries is the latter. This difference explains why a book of this nature should be written by an American author.

An interesting and important feature of the book is the effort made by the author to explain how the child health services provided by the community should be integrated with the services provided by the family doctor.

The material is presented in four sections. The first deals with basic considerations and covers the trends in mortality and administrative arrangements. Under the title "Essential Health Services", the second section is concerned with the

promotion of mental health, control of communicable diseases, nutrition and dental care. The third section is devoted to the administrative arrangements and types of services given in the prenatal period, infancy, childhood and adolescence. The fourth section includes chapters on the physically, mentally and socially handicapped child.

Most of the material is treated in a somewhat superficial manner which suggests that the author intends the book to serve the American undergraduate. It is doubtful if it would be of any great use to the practising public health officer. The great differences between the ways in which child health services are provided in the United States of America and in Australia limits the usefulness of the book in the Commonwealth.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"The Process of Psychotherapy", by Harrington V. Ingham, M.D., and Leonore R. Love, Ph.D.; 1954. New York, Toronto and London: McGraw-Hill Book Company, Incorporated. 9½" x 6½", pp. 280. Price: \$5.00.

The book is "an attempt to describe the ways in which a psychotherapist works".

"The Physiology of Man", by L. L. Langley, M.A., Ph.D., and E. Cheraskin, M.D., D.M.D.; 1954. New York, Toronto and London: McGraw-Hill Book Company, Incorporated. 9½" x 6½", pp. 622, with 180 illustrations. Price: \$5.50.

The book is dedicated to the proposition that learning can be fun.

"Infant Feeding and Feeding Difficulties", by Philip Rainsford Evans, M.D., M.Sc., F.R.C.P., and Ronald MacKeith, M.A., D.M., F.R.C.P., D.C.H.; Second Edition; 1954. London: J. and A. Churchill, Limited. 3½" x 6½", pp. 288, with 66 illustrations, including two coloured plates. Price: 12s. 6d.

The authors have tried to present their advice so that the book will be useful whatever the reader's country may be.

"Peripheral Circulation in Man: A Ciba Foundation Symposium", editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Jessie S. Freeman, M.B., B.S., D.P.H., assisted by Joan Etherington; 1954. London: J. and A. Churchill, Limited. 8" x 5½", pp. 232, with 72 illustrations. Price: 25s.

The subject discussed is stated in the introduction to be a field in which the results of clinical work are most important to physiologists; problems are revealed which would otherwise be unsuspected by them.

"The Eczemas: A Symposium by Ten Authors", edited by L. J. A. Loewenthal, M.D. (Liverpool), M.R.C.P. (London), D.T.M. and H. (Liverpool); 1954. Edinburgh and London: E. and S. Livingstone, Limited. 10" x 6½", pp. 276, with 77 illustrations. Price: 35s.

The editor has tried "to keep in mind the needs of the general practitioner, who prefers a practical guide rather than a maze of argument".

"Resection-Reconstruction of the Hip: Arthroplasty with an Acrylic Prosthesis", by Jean Judet, Robert Judet, Jean Lagrange and Jean Dunoyer, edited by K. I. Nissen; 1954. Edinburgh and London: E. and S. Livingstone, Limited. 9½" x 7", pp. 166, with 101 illustrations. Price: 30s.

The authors indicate which patients are likely to benefit by the insertion of an acrylic prosthesis, explain various points in the operative technique and discuss the results obtained by them in four hundred cases.

"Rh-Hr Blood Types: Applications in Clinical and Legal Medicine and Anthropology: Selected Articles in Immunohematology", by Alexander S. Wiener, M.D., F.A.C.P.; 1954. New York: Grune and Stratton. 10" x 7", pp. 775, with about 150 text figures. Price: \$11.50.

The volume contains the author's "most representative and important contributions to the subject".

The Medical Journal of Australia

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

PENICILLIN REACTIONS: A WARNING.

HALF a century ago, Ehrlich set in train the quest for his "magic bullets", substances to provide specific anti-infective therapy, but despite his own initial success with the drug which he called salvarsan and notable advances in the control of protozoal infections, his idea of chemotherapy failed to fulfil its early promise. The difficulty apparently lay in the close adherence to his original aim of finding drugs that would kill microorganisms and at the same time be harmless to the protoplasm of the normal body cell. Then, in the mid-nineteen-thirties, the first of the sulphonamide drugs appeared, depending for its action on quite a different pharmacological principle, and remarkable results followed. Certain of the sulphonamides still have an established place in therapeutics, but the disadvantages of members of this group individually and as a whole became apparent early in their career, and the advent of the first of the antibiotics, penicillin, was hailed with enthusiasm. Here at last, it was thought, was the powerfully effective anti-infective drug with little or no toxic effects. The virtues of penicillin are certainly great, and its use may be said to have changed the face of therapeutics, at least in relation to infections. Moreover, despite the introduction of other effective antibiotics, penicillin retains its place as at least one of the most popular of this group. Indeed, it must be admitted that it is too popular, and it seems necessary to repeat the plea already made many times in these columns for care and restraint in the use of this powerful and valuable drug. It is necessary to shout from the housetops the change that has come over the scene since this seemingly harmless miracle drug came into use in 1943. Today, in the words of Richard A. Kern and Major Norris A. Wimberley, junior,¹ it heads the list of medicinal agents in the frequency, diversity and severity of the sensitivities which it induces. In

current experience it has replaced foreign sera as the commonest cause of fatal anaphylactic shock. It is responsible for a growing number of deaths due to irreversible vascular allergy, as in *periarteritis nodosa*.

However, an even more serious matter to the medical conscience is the fact that this change was not wholly inevitable, and many of the more severe reactions still need not occur. As Kern and Wimberley point out, in many instances sensitivity has unnecessarily been incurred, and moreover the severest sensitivities can be recognized by skin tests. Their review of the situation, made in the light of their own and other people's experiences, warrants careful attention. They quote examples of the many manifestations of penicillin sensitivity, which "cover almost the whole gamut of allergic reactions and immunological mechanisms". The severest manifestation is that incident to anaphylactic sensitivity, and its greatest danger lies in death from anaphylactic shock. Deaths from anaphylactic shock are rare incidents in medical practice, yet when Kern and Wimberley wrote their report, they were able to find fifteen cases of anaphylactic death from penicillin reported in the literature in the preceding year and a half. In addition to these deaths, more protracted types of penicillin sensitivity have at times also proved fatal. Exfoliative dermatitis due to penicillin and chronic irreversible vascular lesions, including *periarteritis nodosa*, contribute additional deaths. Syphilis have at times promptly died after penicillin-induced Jarisch-Herxheimer reactions, in some of which a sensitization factor could have been involved. Kern and Wimberley point out that to get a complete estimate of the lethal seriousness of penicillin reactions, one would need to know not only how many anaphylactic deaths have not been reported, but in how many of the more protracted severe reactions the role of penicillin was not suspected. Their list of types of reaction includes *dermatitis medicamentosa*, urticaria, *erythema nodosum* and *erythema multiforme*, contact dermatitis, exfoliative dermatitis, bullous dermatitis, "serum sickness" reaction, purpuric reactions, agranulocytosis, photosensitivity, *lupus erythematosus disseminatus*, *periarteritis nodosa*, anaphylaxis and a variety of miscellaneous reactions. It would appear that individuals with a personal or familial history of allergy are more easily sensitized to penicillin, and these furnished the majority of the severe and fatal penicillin reactions recorded. The general experience is summed up in the statement that much penicillin sensitivity is unnecessary and is preventable by not giving penicillin in the treatment of minor ailments, by avoiding local applications of the drug, by avoiding preparations of depot penicillin unless they are decidedly necessary, by giving preference to the oral route of administration and by avoiding combined parenteral injections with other possible antigens. As was mentioned before, the most dangerous type of penicillin sensitivity, anaphylaxis, can be usually recognized by a skin test, especially by the immediate wealing reaction on cutaneous or intracutaneous testing, and at times, in lesser degrees of sensitivity, also by the delayed (twenty-four to forty-eight hour) intracutaneous reaction.

Apart from the question of avoiding penicillin sensitization in the first place, penicillin reactions may be largely

¹Am. J. Med. Sc., October, 1953.

avoided by paying careful attention to an allergic history in the patient's background, by questioning patients with regard to previous penicillin therapy, especially previous penicillin reactions, and by taking proper precautions in the management of such patients. Because absorption of penicillin is slower from the digestive tract, oral administration is followed by a less acute reaction than when the drug is given parenterally, so that in general preference should be given to the oral route of administration, a route to which there are not the same financial objections as there used to be. Kern and Wimberley state that if parenteral administration is necessary, the injection should be given into the arm only and at a low enough level so that the effective use of a tourniquet will not be prevented in case of a severe reaction. The treatment of the various types of penicillin reactions is of considerable importance, and may present difficulties. The greater the sensitivity of the patient, the sooner the reaction begins after the dose of penicillin. In the records of the 17 fatal cases of anaphylactic shock, when symptoms began within a minute or two and death came in ten to fifteen minutes, it was noted five times that all was over before any treatment could be given, and probably for the same reason, no mention of treatment was made in five other cases. In the rest, no significant effects were achieved by a variety of the measures usually regarded as of value in these circumstances. The important point in treatment, according to Kern and Wimberley, is preparedness to meet the emergency. This requires the availability of a tourniquet, sterile syringes and adrenaline, "Benadryl" or "Pyribenzamine" for parenteral use, as well as other drugs that may be required, and oxygen. At first sign of a severe reaction, the tourniquet should be applied and kept in place, except at long intervals, to delay absorption. The airway should be kept open and oxygen administered by mouth. A sympathomimetic drug, preferably adrenaline, should be given by the intravenous drip method. Antihistamine drugs may be given intravenously. To prolong and hold the effect initiated by these measures, ACTH may be given by the intravenous drip method, or cortisone may be given by mouth. The first step with lesser reactions is to stop the penicillin therapy. For milder reactions full doses of antihistamine drugs and ephedrine are indicated. For exfoliative dermatitis and *periarthritis nodosa* cortisone is required. For chronic urticaria and severe "serum sickness" reactions the penicillin therapy should be stopped and antihistamine drugs given in full dosage. The diet should be restricted to cooked foods only, and in addition the patient should eat no fish or sea foods, nuts or chocolate. If symptoms are completely relieved, the administration of antihistamine drugs should be gradually ceased, and if symptoms do not recur, the diet may be gradually relaxed. If symptoms are not relieved by these measures, then food sensitivities should be tested and the diet arranged accordingly. If no positive food reactions are found, then a course of cortisone should be given. Above all, however, a sense of responsibility must be universally developed towards the use of penicillin and the other antibiotics. They are much too valuable to be turned into therapeutic outlaws.

Current Comment.

TREATMENT OF THYROTOXICOSIS WITH POTASSIUM PERCHLORATE.

POTASSIUM PERCHLORATE is the latest addition to the small group of agents which there is good reason to regard as being effective in the treatment of thyrotoxicosis. In most people's minds surgical operation has not been supplanted as the basic method of treatment of thyrotoxicosis; but the use of the thiouracil group of drugs, whether as a form of medical treatment complete in itself or as an adjuvant to surgical treatment, has undoubtedly had a profound effect on the therapy of thyrotoxicosis and the results to be expected from it. However, the toxic effects produced by thiouracil have been sufficiently frequent, and in some cases severe, to be disquieting. Experience with potassium perchlorate so far has failed to reveal similar toxic effects. The action of perchlorate is fundamentally different from that of the thiouracils. According to M. E. Morgans and W. R. Trotter,¹ perchlorate acts only on the iodide-concentrating mechanism of the thyroid. Thiouracil, on the other hand, leaves this mechanism unaffected but prevents the oxidation of iodide and its subsequent incorporation into protein molecules to form thyroglobulin. Thiouracil is therefore effective whatever the concentration of iodide in the blood; but perchlorate would become ineffective with blood iodide levels sufficiently high to raise the concentration in the thyroid to the level normally attained by the gland's iodide-concentrating mechanism. Hence, the patient whose thyrotoxicosis is controlled by perchlorate would be liable to relapse if his blood iodide level was suddenly raised, for example, by the administration of an iodide-containing cough medicine, or if iodide was added during the final stages of pre-operative treatment to reduce the vascularity of the goitre.

Morgans and Trotter carried out a trial with 108 patients to find out whether potassium perchlorate was effective, safe and suitable for routine use in the medical treatment of thyrotoxicosis. Its effect on untreated subjects was compared with that of methyl thiouracil and methimazole, because those were the two drugs of which the investigators had had most experience. In addition, potassium perchlorate was substituted for methyl thiouracil in a group of patients already under treatment. Patients treated with potassium perchlorate were found, on the whole, to respond satisfactorily. The average rate of response was somewhat slower than is usually seen after treatment with methyl thiouracil, but this was thought to be important in only one of 25 fresh cases; in this case, the patient's ability to resume work was delayed, and she was therefore given a small dosage of methyl thiouracil in addition to perchlorate with satisfactory results. Morgans and Trotter point out that the rapid abolition of thyrotoxicosis is not always necessary or even desirable, but in a situation in which speed of recovery is important, as with thyrotoxicosis complicated by cardiac failure, it might be unwise to rely on the use of perchlorate alone. The experiment of changing over another series of patients from methyl thiouracil to potassium perchlorate has shown that the equivalent dosage of potassium perchlorate is from two to four times as great as that of methyl thiouracil, but even on this dosage occasional patients were not so well controlled with perchlorate as they had been with methyl thiouracil. The general conclusion drawn by Morgans and Trotter from their experience is that potassium perchlorate is perfectly satisfactory for controlling thyrotoxicosis in most cases, but in a few it is not completely effective. They consider that the possibility of using a combination of small doses of perchlorate and methyl thiouracil in such cases seems worth exploring; since the two drugs act at quite different points in hormone synthesis, they may well have a synergistic action.

The particular point in favour of potassium perchlorate from the results so far is the fact that toxic effects have

¹ *Lancet*, April 10, 1954.

been inconspicuous. In this series of 108 cases, hypersensitivity reactions were not observed, and it is considered that they are not to be expected on theoretical grounds—more particularly, in view of the fact that perchlorate has a simple and relatively non-reactive molecule. It is possible, but not yet proved, that potassium perchlorate may act as a gastric irritant in some people. Another advantage, which may tend to be overlooked by doctors and patients in these days of government-supplied drugs, is the fact that potassium perchlorate is cheap. Enough tablets to treat a patient at a dosage of 400 milligrammes daily for a month cost twopence in England, according to Morgans and Trotter, and this is from a tenth to a three-hundredth of the cost of the equivalent doses of other antithyroid drugs in common use. Morgan and Trotter's report is a straightforward one which indicates that potassium perchlorate may well be of real value in the treatment of thyrotoxicosis. For their part, they state that their experience has encouraged them to continue using potassium perchlorate and to recommend it as worthy of further trial. The only reservations that they wish to make are that it is unsuitable for use in combination with iodides for pre-operative preparation, that in a few cases it has proved relatively ineffective, and that the possibility that it is a gastric irritant for some people has not yet been excluded.

PYLORIC STENOSIS IN MEMBERS OF SUCCEEDING GENERATIONS.

An interesting if unavoidably incomplete investigation has been recently carried out into the incidence of pyloric stenosis in members of succeeding generations. In this investigation, which is reported by C. O. Carter and B. W. Powell,¹ an attempt was made to trace from their original addresses 358 men and women who had had the diagnosis of pyloric stenosis confirmed at Rammstedt's operation performed at the Hospital for Sick Children, Great Ormond Street, and at St. Thomas's Hospital, London, between 1920 and 1929. Only 85 persons were traced in this way. They were found to have had, so far, 25 sons and 21 daughters. Of those children, three sons but no daughters had had pyloric stenosis confirmed at Rammstedt's operation. The number of children born to the 273 men and women who were not traced from their original addresses is unknown, but it was roughly estimated on the basis of census data to be about 75 sons and 75 daughters. It is known, however, that six of these boys and one of these girls had pyloric stenosis confirmed at Rammstedt's operation, because their parents (though not traced from their original address) brought them to the Hospital for Sick Children for treatment. These findings are at least suggestive and the future will provide increasing opportunities of verifying them or refuting them. Carter and Powell point out that Rammstedt described his operation for congenital pyloric stenosis in 1912. It was first used at the Hospital for Sick Children, Great Ormond Street, in 1917, and an increasing number of successful operations was performed there from 1918 onwards. Before that time, relatively few children were admitted to the hospital with pyloric stenosis, and most of them died in hospital. It is natural, therefore, that until recently it has been most unusual to find children with pyloric stenosis one of whose parents also had a well documented history of pyloric stenosis. The findings so far indicate that children of individuals with pyloric stenosis have a risk of being affected of the same order as brothers and sisters. Carter and Powell point out that this strengthens the hypothesis that genetic factors are important in the causation of pyloric stenosis, though environmental factors must also play a part.

The genetic aspects are discussed in some detail in this paper, but it is obvious that much more information will be required before the position can be assessed. Carter and Powell are by no means sweeping in their conclusions,

but they do suggest that the proportion of sons affected is sufficiently high to make it worth watching these children in the early weeks of life for symptoms and signs of early pyloric stenosis. Relevant to this is the interesting observation that in several instances the grandmother, who was the mother of the affected parent, was sure of the diagnosis some time before the family doctor was convinced that the child had pyloric stenosis. That is probably as far as the matter can go at present, but we may bear in mind the further suggestion that later, when the risk is precisely known (and if, of course, the trend of the findings in these investigations is maintained), it may even be worth attempting some prophylactic treatment from birth in the families of those affected.

MYXOMATOSIS.

APART from its practical importance in relation to the rabbit problem, myxomatosis is of interest as an epidemiological study. A progress report recently issued by the Commonwealth Scientific and Industrial Research Organization helps to clear up a number of points that have become confused in the public mind. According to reports received by the organization's Wildlife Survey Section and cooperating State authorities, myxomatosis is now having a satisfactory effect in spite of a disappointing start in the current season. Outbreaks of the disease have, in general, been much later in starting than in previous years; but although most of the sharp local epizootics seem now to have worked themselves out, the disease is still widely active at a low intensity, and autumn and early winter outbreaks are still possible. Early in the season there were many local reports of exceptionally rapid rabbit breeding, but later surveys have shown that the danger of plague numbers developing was exaggerated. In contrast to the position in previous seasons, there was very little over-winter smouldering of the disease in 1953. In fact, the infection seems to have died out in the field over wide areas. This was probably a factor in the lateness of the outbreaks of the disease, which had to wait for reseeded by artificial inoculation. This was carried out on an extensive scale in Victoria and New South Wales with standard virus of high virulence. Practically all outbreaks of the disease that have been investigated in New South Wales and Victoria appear to stem from the current season's inoculations.

The pattern of the 1953-1954 season is again in contrast to that of 1952-1953 in relation to the general development of high rates of rabbit destruction. On the whole the position, which threatened a few months ago to be disappointing, now looks very satisfactory. There are still too many rabbits about for complacency, but there are very few places where their numbers are sufficient to put a dangerous pressure on the land. This year is more like 1950-1951 (the first season for the activity of the disease in the current campaign) with high rates of kill restricted to the neighbourhood of rivers, swamps and irrigation systems. Further back (where, in general, rabbit population numbers are moderate to low) there have generally been only scattered cases. On the Murray water frontage there appear to be very few gaps in a continuous disease activity. Very good rates of kill have been recorded where there have been high rabbit concentrations, and the outbreaks have been explosively short. The country as a whole looks to be in remarkably good heart. In areas where the effects of the dry season are being felt the rabbits have not bred up much. The dying out of the disease over wide areas may have been a blessing in disguise, since it enabled the disease to be set off again with fully virulent virus.

The report goes on to point out that the difference in disease spread and performance between the four seasons of myxomatosis activity in Australia now fits a logical picture. The first (1950-1951) season was average or below average in the south of eastern Australia, with flood rains in northern New South Wales and Queensland. In the south the disease was restricted to those zones where there are always mosquitoes, and followed the waters very

¹ *Lancet*, April 10, 1954.

closely. In the flooded regions further north it developed over broader areas. The second (1951-1952) season had good winter and spring rains, and the creeks in the hilly and undulating grazing country ran until the warm weather; then they dried up into a series of holes ideal for the breeding of the mosquito vector (*Anopheles annulipes*). This season saw a tremendous extension of the disease. The third (1952-1953) season was like the second, only better. Mosquitoes of the right species were widespread, and there was evidence that other insects, for example, the Simuliid fly, played a useful part in dispersing the infection. This season probably represents the best level of myxomatosis transmission in Australia, with a favourable combination of conditions that can be expected to recur only infrequently. The 1953-1954 summer followed on a dry or dryish winter and spring with transmission conditions reverting back more closely to those operating in 1950-1951. The hill creeks that bred mosquitoes during the two previous years have for the most part been dry this summer, so that wide regions have simply lacked an effective vector population. Scientists of the Commonwealth Scientific and Industrial Research Organization are coming to the conclusion that the key factor making for a good myxomatosis year is adequate late winter and spring rain. Without this, there may be useful activity as the result of a local combination of favourable conditions, but whole regions will not be swept by the disease as happened in 1951-1952 and 1952-1953. It appears therefore that a good season for rabbits will tend also to be a good one for the prevalence of insect vectors which carry myxomatosis, which is most encouraging. It would, however, be very easy to envisage a year in which the rain was distributed in such a way as to produce green feed that encouraged rapid breeding, but failed to cause creeks to run and give surface water at the right time to produce a good and widespread population of vector insects.

There have been numerous reports during the past year suggesting that Australian rabbits are developing an immunity to myxomatosis. This is a misconception, according to the report. The facts are as follows. There is good evidence that, after two or three years of self-perpetuation in the field, the virus has "slipped back" in virulence from its original level, at which it killed 99% or more of infected rabbits. A kill of 90% to 95% of infected animals seems to have been the rule during the 1952-1953 outbreaks. This meant that the surviving populations often had a high proportion of recovered animals, which are immune to subsequent infection. Their offspring, however, are not immune or resistant to the disease. This has been well demonstrated this season by the very satisfactory kills that have been recorded in those areas where mosquitoes have been in adequate numbers to produce a high infection rate. In many such areas the susceptible new generation seems to have been virtually wiped out by outbreaks of the disease originating from fresh inoculations. Professor Frank Fenner, of the Australian National University, now considers that the virus has settled down in Australia to a virulence closely approximating that of the "wild" strain found in Brazil, the original home of the disease; and that the "standard" strain used to initiate the epidemic in this country (which was obtained from the Rockefeller Institute in America) must be regarded as a laboratory variant with an artificially enhanced virulence. If he is correct in saying that the virus has reverted to what may be considered the natural state, it means that the virus will tend to become stabilized in the field at a level of virulence that will kill at least 90% of infected rabbits, and not deteriorate progressively over the years, as was once feared to be likely. An infection with a case mortality rate of 90% to 95% is still highly lethal, as diseases go; but from the point of view of its controlling effect it is a very different thing from one killing over 99%. A virus killing over 99% leaves only five to ten survivors among one thousand infected rabbits; a virus killing between 90% to 95% leaves between 50 and 100 survivors per thousand—a very dangerous breeding residue, capable of giving rise to a substantial infestation before the next summer's epidemics cut the population back once more. These considerations show the importance of the recur-

rence of conditions, such as drought, that lead to the widespread extermination of field strains of the virus and permit the successful reintroduction of a highly virulent strain.

According to Mr. F. N. Ratcliffe, officer in charge of the Commonwealth Scientific and Industrial Research Organization's Wildlife Survey Section, although the ultimate benefit that myxomatosis will bring to Australia in the future is conjectural, the disease has so far done two invaluable things. First, it has swept away the acutely serious situation that existed in 1950, when the rabbit was virtually out of control over much of eastern Australia—and in doing so gave production a tremendous boost, increased the national income by many millions of pounds and left the country in a state such as few people can remember having seen it. Second, it gave hundreds, perhaps thousands, of land holders a free demonstration of what their land could produce when the pressure of the rabbit had been removed from it. This, to a generation that has never known a rabbit-free land and has come to accept the pest as almost inevitable, should do more than any verbal exhortation to convince property owners that the labour and expense of intensive eradication measures are economically justified. It is considered that the performance of myxomatosis over the next few years will depend largely on the luck of the seasons, but there are reasonable grounds for hoping that it will keep the rabbit problem in check for some time. The obvious need, however, is for individual land holders to exploit the position in which the disease has put them, and to make an attempt, wherever practicable, at total eradication. The coming winter is the time to get busy.

BORIC ACID POISONING FROM NAPKINS.

THE dangers, especially to small children, associated with the use of boric acid have been the subject of a number of comments in these columns, and attention has been drawn at the same time to the comparative uselessness of boric acid as an antiseptic. It is one of the things that we could very well do without. Now we have an account by P. C. McGillivray and M. S. Fraser¹ of boric acid poisoning in an infant following the use of powdered boric acid on the napkins. They review the literature on the subject and state that the usual sequence of events is the appearance of vomiting and diarrhoea followed by the development of skin eruptions and convulsions. Fever, haematemesis and melena may occur. The rash is most often erythematous, presenting a "boiled lobster" appearance, but it may be macular or pustular. Aggravation of the napkin rash and intense congestion of the tips of fingers and toes are additional features which may be present. The carmine and turmeric tests for boric acid in urine are convenient methods for confirming the diagnosis. Treatment employed includes the intravenous administration of fluids and the exhibition of antibiotics and sedatives. However, this is a situation in which prevention is simple and desirable. The application of boric acid in ointment or powder form is potentially dangerous, and, while its use in napkin rinses has not been reported to cause poisoning, we may well support the conclusion of McGillivray and Fraser that some safer substance should be employed.

HINDQUARTER AMPUTATION.

HINDQUARTER AMPUTATION is not only a formidable operative procedure, but also a formidable subject of controversy. As G. W. Taylor and W. B. Rogers, junior,² put it, it is viewed with scepticism and as a form of surgical exhibitionism by a large part of the medical profession. Indeed, one of these authors was recently informed by a

¹ Arch. Dis. Child., December, 1953.

² New England J. Med., December 10, 1953.

senior medical student that there was never any excuse for perpetrating such a mutilation on human subjects—not, one would think, a specially tactful remark in view of the fact that Taylor and Rogers have the comparatively large series of 18 hindquarter amputations to their record. The operation is certainly not one that will usually be contemplated by either patient or surgeon with equanimity. However, at least on paper, the results obtained by Taylor and Rogers in their series of 18 patients operated on since 1940 with no operative deaths offer considerable justification for what they have done, and they point out that to those who have witnessed the clinical course of patients suffering from chondrosarcoma of the hip region with a foul fungating tumour progressing to ultimate metastasis and death, it is evident that no other form of therapy will suffice to cure. Indeed, they state, for malignant lesions of the upper part of the femur hemipelvectomy is more likely to be successful than hip-joint disarticulation. Of their 18 patients ten had chondrosarcoma of the innominate bone or upper part of the femur; eight of these have survived, one is living and well six years after operation, and there are three five-year survivors. One patient died eleven months after an operation for squamous-cell carcinoma in a chronically draining sinus tract from a tuberculous hip. Another patient survived for eleven months with a chondrosarcoma that at operation was found adjacent to the line of excision at the sacrum and subsequently recurred. The only patient with osteogenic sarcoma survived for seven months. Taylor and Rogers describe in detail, according to their own practice, the operative technique and management of patients. Of particular importance is their reference to advances in rehabilitation procedures that have taken place in recent years. These have brought remarkable functional results in many cases despite the undeniable severity of the mutilation involved in hindquarter amputation.

HYPOFIBRINOGENAEMIA OF PREGNANCY.

INCOAGULABILITY of the blood as the result of hypofibrinogenemia is an obstetric syndrome in which death from unmanageable hemorrhage may be the result. According to C. P. Hodgkinson, R. R. Margulis and J. H. Luzadre,¹ who discuss the etiology and management of this condition, it is known to occur superimposed on two complications of pregnancy—firstly, accidental hemorrhage or *abruptio placentae*, and secondly, the prolonged retention of a dead fetus in an Rh-sensitized mother. Incoagulable blood from a deficiency of circulating fibrinogen is the outstanding pathological characteristic in both conditions. In the *abruptio placentae* type, fibrinogen depletion is coincident with placental separation; in the macerated fetus type, hemorrhage is gradual in onset and may be evident days before the onset of labour, a fact which suggests a gradual and prolonged loss of circulating fibrinogen. The condition in the first case is accepted as being the result of massive intravascularly disseminated coagulation through rupture of the maternal decidua plate and circulatory flooding with decidua extracts rich in thromboplastin, which convert fibrinogen to fibrin. The mechanism of the macerated still-born type cannot be evaluated at the present time. In both types there is depression of the levels of plasma fibrinogen, Ac-globulin and prothrombin and probably of the platelets. Coagulation time is prolonged, bleeding time is not significantly altered, clot retraction is poor, clot formation is abnormal and blood calcium content is undisturbed. Fibrinolysis of the clot occurs in the macerated stillbirth type and not in the *abruptio placentae* type. Discussing management of the condition, Hodgkinson, Margulis and Luzadre state that laboratory evaluation of blood fibrinogen content is a standard procedure, and successful treatment depends on elevation of the blood fibrinogen content above the critical level of about 90 milligrammes per 100 millilitres. Natural regeneration of fibrinogen is prompt and occurs in a matter of a few hours. Intravenous administration

of fibrinogen (2000 to 8000 milligrammes) in saline solution is of value, but fibrinogen is not available; moreover, this may be hazardous, as the virus of infectious hepatitis is concentrated in the fibrinogen. For the present, at least, whole blood transfusions must be depended upon for treatment, and a single injection of 500 millilitres can be expected to raise the blood fibrinogen level 10%. Corticotropin or cortisone may be of value in the treatment of the macerated stillbirth type of hypoprothrombinemia, but experience of this is still too limited to allow conclusions to be drawn.

THE THORACIC SOCIETY OF QUEENSLAND.

The Thoracic Society of Queensland came into being towards the end of last year with two objects: (a) to advance the study and practice of the medicine and surgery of thoracic diseases; (b) to bring together medical practitioners especially interested in, or practising solely in, thoracic diseases, in the widest sense. The four classes of members (foundation member, member, associate member, honorary member) provide for practically any medical practitioner sufficiently interested in thoracic diseases to wish to join the Society. However, the number of members is limited to 20 and the number of associate members to 10; so there should be sufficient competition for membership to maintain keen activity within the Society. In this regard one of the Society's rules (Rule 18) is of particular interest: "Any member, if requested by the executive, shall deliver a paper on a subject agreed to by the member so invited and the executive. Failure to comply with this rule will automatically disqualify the person from membership. The Society prefers that papers should be spoken and not read." The rules also lay down that scientific meetings shall be held at least twice yearly. Of a less formidable character is the intention of the Society (in the words of the honorary secretary, Dr. Athol H. Robertson) "to revive the pleasant informal type of meeting, whereby films, visual impressions in comfortable surroundings, with a supper or lunch to follow, enable scientific medical education to be achieved with the minimum of physical hardship". Further information about the Society may be obtained from Dr. Robertson, at the Brisbane Clinic, Wickham Terrace, Brisbane, B.17.

CHLORAMPHENICOL.

A NUMBER of references have been made in these columns to reported harmful side-effects of chloramphenicol. Most of these reports have come from overseas, and evidence is lacking that medical practitioners in Australia have had reason from their own experience to mistrust this antibiotic. However, it is as well to note that responsible opinion on the question seems to have become firm in the United States. The following statement,¹ adopted by the Council on Pharmacy and Chemistry of the American Medical Association after a review of the status of chloramphenicol, speaks for itself:

Because of the occurrence of serious and fatal blood dyscrasias, it is advisable to restrict the use of chloramphenicol to the treatment of typhoid fever and other serious infectious diseases caused by organisms controlled by chloramphenicol, but resistant to other antibiotics or other forms of treatment.

AN HONOUR FOR DR. JOHN BELISARIO.

WE have been advised that Dr. John Belisario, of Sydney, who some time ago was elected as a corresponding member of the American Dermatological Association, has now been elected as the first Australian corresponding member of *La Société française de dermatologie*.

¹ J.A.M.A., February 13, 1954.

² J.A.M.A., January 9, 1954.

Abstracts from Medical Literature.

SURGERY.

Control of Pain from Rectal Carcinoma.

L. G. BODKIN (*Am. J. Surg.*, October, 1953) investigated the effect of parasympathetic stimulation on patients with carcinoma of the rectum. It was assumed that over-stimulation of the parasympathetic nervous system was a factor in producing pruritus ani because of alteration in capillary permeability; and in order to determine whether such alteration also occurred in patients with carcinoma of the rectum, "Urecholine" in 15 to 30 milligramme doses was administered three times a day. An increased discharge of clear, plasma-like fluid was noted in most cases, and upon microscopic examination oedema of the connective tissue was seen in many instances. In addition, in a series of 37 cases, an absence of pain was noted in 21, in two pain was present only during the last three to seven weeks, but in the remaining 14 pain was not prevented or diminished. When started late, this therapy had no effect and was completely ineffectual in those instances in which opiates had been used for some time.

Treatment of Complications of Plantar Warts.

DAVID W. ROBINSON (*Arch. Surg.*, April, 1953) points out that most plantar warts respond well to simple forms of treatment, but a multiplicity of methods indicates no single better mode. Electrocoagulation, chemicals, freezing, podophyllin and irradiation have all produced some good results. Surgical excision has few advocates because of the resultant painful scars and calluses. Many persons are insensitive to radiotherapy, and many poor results of such repeated or over-enthusiastic treatment are seen. In general, repeated treatments have caused deep fibrosis, which is the fundamental pathological cause of intractable ulceration with its attendant pain. The long-treated painful ulcer surrounded by thick callus, whether or not the wart is any longer active, is bloodless, and further local treatment is not only of no avail but is wrong because it makes the fundamental process worse by adding scar on scar. Good durable coverage with protective qualities and adequate sensation is what is needed. Simple excision and closure may be sufficient if the area of fibrosis is localized and small. Split-skin grafts to plantar surfaces in general are too thin and must always be cared for and protected. Full-thickness skin grafts on weight-bearing areas are adequate coverage for some patients if the fat pad beneath is thick and vascular. Pedicle coverage is usually needed if the underlying bed of the plantar defect is avascular, if the area overlies a bony prominence, or if the defect is much larger than one centimetre in diameter. Wide excision is necessary to remove all scar. Sometimes part of the aponeurosis must be excised with exposure of tendons and heads of metatarsals. Occasionally bony prominences and sesamoid bones must be removed. Wherever possible local shift flaps are better than distant pedicle coverage.

Most often, a flap can be rotated from beneath the toes, from over the instep or from the side of the foot. The donor defect can be covered by a thick split-skin or a full-thickness skin graft. A useful local flap, when the defect is over the ball of the foot, relatively near the bases of the four small toes, is a filleted toe flap. Distant pedicle flaps are usually cross-leg flaps, and this procedure should be reserved for the most severe cases in which the surface loss on a weight-bearing area is large. While the author has not performed the "pie" operation of Dickson, he has observed the results. In this procedure, the defect is excised by an ellipse and closed longitudinally. The foot is narrowed by removing the underlying metatarsal and the attached toe. The foot is collapsed and narrowed by sutures. The author feels that this procedure violates the principle of making long scars against cleavage lines, and, furthermore, depression of the arch may produce new pressure points.

The Gastric Antrum.

LESTER R. DRAGSTEDT (*Arch. Surg.*, October, 1953) reviews the literature on the physiology of the gastric antrum and concludes that, despite some recent criticism of it, there is still strong support for the theory of the secretion of gastrin by the mucosa of the pyloric antrum in response to the presence of some foods in the stomach, and that the antrum may be regarded as an endocrine organ distinct in function from the mucosa of other parts of the gastro-intestinal tract. It has, however, been found that the application of acid solutions to the antral mucosa in isolated pouches causes an inhibition of gastric secretion. It therefore appears that the inhibition of gastric secretion which occurs when the acidity of the gastric contents approaches 60 clinical units is probably dependent on this same mechanism which helps to prevent a harmful rise in gastric acidity. It is also concluded that, in view of the alteration in function of the antrum after some methods of surgical treatment of peptic ulceration, a better knowledge of the physiology of this endocrine gland is of great importance.

Palliative Resection for Oesophageal Carcinoma.

M. E. DEBARRY AND D. A. COOLEY (*Arch. Surg.*, June, 1953) discuss the results obtained in the treatment of carcinoma of the oesophagus and conclude that a curative surgical procedure can be applied to only a small number of patients, since the disease has extended beyond the limits of the oesophagus in the great majority of cases by the time surgical treatment is made available. This is due to an inadequate appreciation of the early manifestations of the disease on the part of both patients and physicians, and to the extensive intercommunicating lymphatics between the oesophagus and other vital structures. However, on the basis of their experience with the various surgical methods proposed, they have come to believe that resection of the tumour, even though all neoplastic tissue cannot be excised, followed by oesophago-gastrostomy, offers the best means of achieving prompt palliation. The evening before the operation the patient is given two capsules previously perforated with a

pin and containing either terramycin or aureomycin (250 milligrammes each). The capsules usually lodge at the site of the obstruction and are useful in reducing the bacterial flora in the retained oesophageal contents. A combined right thoraco-abdominal approach is used together with a right cervical incision for high lesions. In all instances, irrespective of the level of the lesion in the lower and mid-thoracic parts of the oesophagus, the oesophago-gastric anastomosis is performed above the level of the divided azygos vein. This high anastomosis is said to give protection against post-operative oesophagitis and stricture formation. Because of the persistent and troublesome gastric retention in some of the early cases, probably due to absence of gastric tone following vagotomy, a pyloromyotomy is now included in the operation. Although the authors' reported series is limited to nine cases, resections were performed with satisfactory palliation in each and without an operative death, even though the general condition of some patients was very poor.

Hürthle Cell Carcinoma.

IRA S. GOLDENBERG (*Arch. Surg.*, October, 1954) reports 22 cases of Hürthle cell carcinoma. He points out that the origin of Hürthle cells has been variously suggested to be from remnants of the lateral thyroid anlage, from post-branchial remnants, from ectopic parathyroid cells, or by involution from normal thyroid cells. Hürthle cell carcinoma was found to occur in 1.7% of 1330 surgical specimens of the thyroid gland. Among solitary adenomata the incidence was 4.5% and among malignant thyroid tumours 30%. Clinically, this tumour behaves in much the same way as a solitary adenoma of the thyroid gland. In no case in this series was the diagnosis made before operation, and there was not even a suspicion of cancer in 20 of the 22 cases. Local surgical removal of the tumour is advised, as it offers a good chance of cure; and radical neck dissection is advised only if there is clinical evidence of spread of the tumour. It is concluded that external irradiation and radioactive iodine have not proved effective in the treatment of Hürthle cell carcinoma.

Metastases from Mammary Carcinoma.

J. J. McDONALD, C. D. HAAGENSEN AND A. P. STOUT (*Surgery*, September, 1953) state that over a period of years at the Columbia-Presbyterian Medical Center they have attempted to improve their treatment of breast carcinoma by seeking more precise clinical criteria which will enable them to select for radical mastectomy only the patients who have some chance of cure. In the past the criteria of operability have been based upon clinical evidence of extension to the supraclavicular and mediastinal regions together with radiological evidence of its spread to the lungs and bones. Because of the absence of a reliable clinical method of determining the existence of regional lymph-node metastases, they have adopted a preliminary biopsy of the supraclavicular and internal mammary lymph nodes in cases in which tumours are in the central or medial portions of the breast or there is clinical evidence of axillary metastases. In certain cases a triple biopsy was performed; that is, a biopsy of the primary

tumour was included prior to determining the method of treatment to be followed. The involvement of the internal mammary nodes is usually associated with a gloomy prognosis, for these nodes are a poor filter when called upon to stop the escape of carcinoma emboli. There are only three or four very small internal nodes strung out along a single lymphatic trunk, while in the axilla there are from 40 to 60 lymph nodes, a number of them of good size. If the internal mammary and supraclavicular nodes do not contain metastases a radical mastectomy is performed a week later. In addition to the radical mastectomy it is considered that a block dissection of the internal mammary lymph nodes may be justifiable when preliminary biopsy shows that the supraclavicular lymph nodes are not involved, and when biopsy of the internal mammary region in the first interspace shows that the disease has not reached this vital point; but this is controversial.

Control of Pain following Hemorrhoidectomy.

WALTER H. GERWIG, SEYMOUR ALPERT, CHARLES S. COAKLEY AND BRIAN BLADES (*Surgery*, November, 1953) describe a method of using intermittent caudal anaesthesia to relieve the pain for the first forty-eight hours after hemorrhoidectomy. With the patient in the prone jack-knife position a skin wheal of 1% "Novocain" solution is made over the sacral hiatus. Through the anaesthetized area a special two and a half inch 18-gauge thin-walled caudal needle is inserted into the caudal canal. When it is certain that the tip of the needle is not in the dura or in a blood vessel, 30 mls of a 0.15% solution of "Pontocaine Hydrochloride" are injected. A 60 centimetre piece of vinyl tubing, the lumen of which will admit a 23-gauge needle, is inserted into the caudal needle for two and a half inches. The caudal needle is then withdrawn over the tubing. (This tubing is sterilized in a long glass tube in an autoclave, and is kept straight with a wire stylet.) A blunt 23-gauge needle is inserted into the distal lumen of the plastic tube and a hub adaptor applied. When the patient complains of discomfort, the hub adaptor is removed, and 20 mls of a 0.15% solution of "Pontocaine Hydrochloride" are injected through the tube into the caudal canal. Usually it is not necessary to give an injection oftener than every three hours. Prior to each injection the patient is strongly encouraged to pass his urine.

Skin Homografts as "Biological Dressings".

JAMES BARRETT BROWN *et alii* (*Ann. Surg.*, October, 1953) state that skin homografts, that is skin taken from a donor for a recipient, have proved a useful biological dressing for severely burned patients and of accepted surgical assistance in saving lives. Skin may be cut from a cadaver soon after death and immediately transferred to the patient or may be kept in a bank for possibly a few days. This opens up a wide vista for the procuring of donor skin in the future, with particular reference to the armed services and in any national calamity. A person who dies may save the life of another person even after his own death. Permission for such post-mortem homografts should not be difficult to obtain either with or without request for a

general autopsy. "Takes" with homografts occur as with autografts, if proper plastic procedures are followed. Permanent persistence of homografts has not been established in any large series in humans, regardless of some enthusiastic reports and popular conceptions, except in identical twins. Walking around in skin from another person is practical as well as intriguing, and estimates of how soon a burned patient can do this, and for how long he can do it, are to be worked out, while the long wait goes on for permanent persistence of homografts. Homografting may be considered the second in four phases of care and rehabilitation of extensive deep burns. First is prevention of shock and maintenance of fluid balance, nutrition and blood elements. Second is homografting as emergency "biological dressings" of open areas to tide the patient over a critical period, if possible. Third is flat-surface autografting, to give permanent wound closure and healing. Fourth is final rehabilitation by plastic surgery, including reconstruction of flexion deformities and restoration of hand function.

Polychordism.

W. A. WILSON AND J. LITTLER (*Brit. J. Surg.*, November, 1953) report two cases in which the patients each possessed a third testis and epididymis, but were in all probability without any additional *vas deferens*. Nineteen previous examples of supernumerary testes have been reported in the literature, and these have included three types of testicular anomalies. In the first two of these the additional testis has no *vas deferens*, but it may or may not have an epididymis; the other testis is normal. In the third type all testes have epididymides, but the *vas deferens* of the supernumerary organ is continuous with that of the normal testis on the same side. In each of the authors' two cases there was an associated inguinal hernia, and in each torsion of the supernumerary testis occurred. In one of the cases the third testis was situated in the anterior abdominal wall, and a similar maldescent has been described in many of the other reported cases. This is related to the absence of a gubernaculum. In neither of these two cases was there evidence of spermatogenesis in the third testis.

Surgery of the Adrenal Gland for Cushing's Syndrome.

E. F. POUTASSE AND C. C. HIGGINS (*J. Urol.*, August, 1953) state that when Cushing described his syndrome twenty years ago, the disturbance was believed to be associated with an adenoma or basophilism of the pituitary gland. It is now generally believed that all such patients have hyperadrenocorticism. In most cases this is caused by hyperfunction of the adrenal cortex, with or without hyperplasia; in about one-fourth of the cases it is caused by a neoplasm of the adrenal. Only rarely is the initiating cause an adenoma of the pituitary, and the special name then is "Cushing's disease". The characteristic features of the syndrome are a round red face, hirsutism, obesity of the trunk and neck, purplish striae on the skin, muscle weakness, amenorrhea or impotence, hypertension, diabetes, osteoporosis, pyelonephritis and mental instability. Not all these features are present in every patient. The syndrome occurs twice as com-

monly in women as in men. Most of the features can be produced by prolonged administration of ACTH, which stimulates the adrenal cortex. Twenty-eight patients with this syndrome were observed over a period of twenty years by the authors. Two of them had malignant cortical tumours, four had an adenoma, and two had small adenomata associated with cortical hyperplasia. In the remainder, cortical hyperplasia was histologically diagnosed not always in association with increased size of the gland. The authors state that the glucose tolerance test result is almost invariably comparable with that in *diabetes mellitus*. A neoplasm may or may not be diagnosable by radiographic means, but bilateral exploration by Young's method, involving an incision along each twelfth rib with removal of much of each rib, is the best method of making sure. When the more common hyperplasia is present, one adrenal is completely removed and only a small fragment of the other is left, this piece containing the arterial supply and the central vein. All patients are given protective cortisone intramuscularly (100 milligrammes) twelve hours before operation and again a few hours before. After operation, 50 milligrammes are injected every twelve to six hours. The dose is gradually reduced as the patient recovers, but a careful watch is kept for adrenal insufficiency. Cortisone is generally necessary for up to three to six weeks. There is usually sufficient DOCA-like action in cortisone to supply the daily need of this hormone, but some patients may have a low serum sodium content; if this is not improved by the taking of enteric-coated salt tablets (four to six grammes daily), DOCA is given in doses of one to three milligrammes daily. Only eight patients have been subjected so far to this almost complete removal of the adrenals, but the results are encouraging.

Subdural Haematoma Complicating Intracranial Aneurysm and Angioma.

EDWIN CLARKE AND JOHN N. WALTON (*Brain*, Volume 76, Part III, 1953) present illustrative cases of subdural haematoma complicating intracranial aneurysm and angioma and also review examples from the literature. They state that it is an uncommon complication occurring in between 1% and 2% of cases of subarachnoid haemorrhage. There are three types: (i) subdural blood present after a massive and rapidly fatal haemorrhage; (ii) an insignificant subdural collection commonly found after severe subarachnoid haemorrhage; (iii) subdural haematoma behaving like the traumatic variety. Bleeding into the subdural space may be due to direct encroachment upon it by the aneurysm, or to tearing of the arachnoid by the force of the haemorrhage. In each case this is facilitated by previous bleeding and local arachnoidal adhesions. Diagnosis is difficult on clinical and cerebro-spinal fluid findings alone, for accompanying vascular lesions mask the picture. Thus cerebral angiography should be used if it is suspected that a case of subarachnoid haemorrhage is complicated by a space-occupying lesion. Without surgery the prognosis is grave. Results of operation in such cases have been very poor, but may be improved by awareness of this complication and by early diagnosis with cerebral angiography.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Broughton Hall Psychiatric Clinic, Leichhardt, New South Wales, on November 19, 1953. The meeting consisted of a series of clinical demonstrations by the medical superintendent, DR. GUY A. LAWRENCE, and members of the staff of the clinic.

Anxiety Hysteria with Phobias.

The first patient presented was a married woman, aged forty-six years, who had been admitted to the clinic for the first time in 1945 because she had become extremely depressed and worried on discovering that her husband had been associating with another woman. She had drunk the contents of a bottle containing corn cure with suicidal intent. Her own doctor had stated that the patient had suffered from anxiety neurosis for ten years previously. The severity of her symptoms had increased after a thyroidectomy carried out ten months before the suicidal episode. She received at the time of that admission a course of electric shock therapy and made a very good recovery from the attack. In August, 1950, she was again admitted to the clinic after operation for the removal of a Fallopiian tube. As soon as she had come out of the anæsthetic from that operation she had been told that the operation was a failure, and that she would have to undergo hysterectomy later on. Since the operation she had lost interest in life and felt worthless and a nuisance to her family, and often she cried. She feared that she was going mad and had pains in the head with severe insomnia and anorexia. She could not do her housework, and that caused her great anxiety because she had always been house-proud and suffered from meticulousity in that regard. At that time she did not doubt her husband's sincerity and had regained her regard for him. She had, however, become sexually frigid and associated a belief that she had lost his love with the fact that she had recently undergone hysterectomy. She had also some degree of secondary depression. Under a methedrine test she said that she still felt that her husband was being unfaithful to her and she was afraid of becoming insane. She received electroconvulsive and subcoma insulin therapy, and in three months her symptoms ceased to be overt. She then went home and remained well for two years, but return of symptoms occasioned her third admission to the clinic in January, 1953. She then had tremors, flushes, sweating, tachycardia, cardiac palpitations, frequency of micturition, indigestion with flatulence and tenderness over the duodenum. She had strong phobias concerning knives and sharp instruments, about becoming insane, about men and horses, and particularly about electricity, as a result of which she had given up the use of domestic electrical appliances. She complained of severe head pains passing into her face and shoulders. With all this anxiety hysteria she had secondary depression. She was given electroconvulsive and subcoma insulin therapy, carbon dioxide and oxygen gas abstraction and non-convulsive electronarcosis, with little improvement.

The comment was made that the patient's attacks of neurosis were increasing in length and severity with each successive episode, and the prognosis was now worse owing to the greatly increased value of the obsessive ideas. Investigation of her family history showed that she had lost her father at the age of nine years, and her mother, a strong, dominant, possessive woman, had always warned her to avoid men, who were dreadful creatures. When she was a small girl, other children had taught her vulval stimulation with the round ends of certain animal bones, and she had been terrified of the knowledge because her mother might find out and punish her. At the age of fifteen she had been the victim of attempted rape by an older boy. This had frightened her and had been her last sexual experience until her marriage at the age of twenty-one years. Married life was very happy until her husband joined the army and was three years away from home, during which time he had periods on leave at home. Then the patient found love letters from another woman in his haversack, and her illness became overt shortly afterwards. So far as the rest of her family were concerned, she got on well with her five sisters, but her two brothers had died in infancy. She had had a number of operations—an operation for miscarriage, partial thyroidectomy, salpingectomy and hysterectomy. Her psychic traumata had been the childish vulval stimulation and the partial rape. It was certain that the former experience at any rate had had its emotional aspect

repressed, and it was very possibly at the source of the patient's obsessive state. In a summing up, it was pointed out that the patient, a woman, aged forty-six years, had not only an intractable state of anxiety hysteria, but one with pronounced phobia expression, the illness returning in an active form at intervals, on each occasion the symptoms being more serious. All the usual dynamic therapeutic approaches had been made, and the question arose of what was to be done for the patient. Her states of fear and tension were very great and had rendered her incapable of leading the ordinary life of a clear-thinking housewife. She had had a good deal of psychotherapy without avail. Her case appeared to be one of those in which the best relief could be found in leucotomy, whereby the anatomical connexions of the cortex and thalamus and hypothalamus could be severed. Moniz, in 1936, had claimed that in such cases pain with anxiety, depression, gloomy forebodings and fear of death, nervousness, tenseness, fear, worry, over-conscientiousness, obsessiveness and meticulousity could all be removed or greatly lessened by frontal lobotomy. The results of such operations had been much more successful if they were carried out before any real insanity occurred. The patient under discussion retained insight, knew that she was mentally ill and showed no dementia, but she was greatly troubled by all her symptoms and feared suicide. Consultation was being arranged with a view to leucotomy.

Depressive State in a Hyperplectic Patient.

The second patient, a single woman, aged fifty-seven years, and an invalid pensioner, had been admitted to hospital on February 19, 1953, because for several months she had been very depressed and had cried frequently, suffering from extreme and easily induced fatigue. She was afraid lest she should not recover and expressed great fear of the hereafter. She was apathetic and uninterested and sat about idly all day, being unable to concentrate properly. Physically, the patient was emaciated and had a blood pressure of 210 millimetres of mercury, systolic, and 110 millimetres of mercury, diastolic; her pulse rate was 134 per minute, and systolic murmurs were audible in all cardiac areas. Investigation of her previous history revealed that she was an only child of elderly parents and was a "change of life baby". The parents had disagreed seriously, and home life was unhappy, not being improved when the father died while the patient was young. As a result great poverty came to the family. The patient became a tailoress and later on was manageress of showrooms for ten years. During that time she had to provide and care for her invalid mother, who was a diabetic. On the mother's death the patient, then aged thirty-five years, had a nervous breakdown. She had another nervous breakdown when she was aged fifty years. For a little while before the present illness she had lived with a male friend, but the relationship had reached no emotional heights. She had always been a very rigid type of person, over-conscientious and worrying about trifles and what other people thought. She was a poor social mixer, but had kept up a select circle of friends, all of whom were imbued with her own high principles. Her whole life had been devoted to her duty at work and to her religious observances, from which she had derived much solace. When she was young, her mother had brought her up in great purity and in the tenets of a small but very narrow religious order. Her condition was diagnosed as one of depressive illness in a person with high blood pressure.

The comment was made that the illness, as was common in such cases, had begun properly after the patient's mother's death. Then the mishandled emotions took control and a vicious cycle was set up; an increased blood pressure began to appear, and over the years the condition became chronic. In the earlier phases the patient exhibited much anxiety and tenseness, with great emotional strain. Later on, when her resistances failed, she developed depression (a sign of defeat), and she was now in a poor state of physical health. The fact that she had had a rigid and superior personality had been very much against her, as people in her category developed such illnesses much more easily than normal happy types. She had had a course of electroconvulsive therapy, and her mental outlook had improved a great deal. She had gained weight, and her general condition was much improved. It was pointed out that in the clinic a number of such women presented themselves for treatment; and if great patience was shown, there was generally a considerable degree of improvement. They had to be taught that if they had an incurable physical disability, they must school themselves to live on terms of peace with it. The outlook in the patient's case was fairly good, provided that she met no more serious worries. It was interesting to note that her blood pressure had advanced to the height of 250 millimetres of mercury, systolic, and 110

millimetres, diastolic. The chronic anxiety and depression with constant emotional distress, her policy of superiority and religious compulsiveness, and her continued state of hostility all filled the general pattern of maladjustment laid down by Gregory Gressel as factors in such cases. A specialist physician's report on the patient was that a moderate degree of cardiac hypertrophy was found on clinical examination. The aortic second sound was accentuated, but there was no evidence of decompensation. As the fundi showed only first degree retinopathy and as the diastolic blood pressure was only 105 millimetres of mercury, the physician did not consider that the use of hexamethonium bromide was indicated. He suggested the use of a diet of low sodium content, mild sedation with a barbiturate and the administration of aminophylline tablets, 2-34 grains three times a day. The electrocardiograms showed slight left ventricular hypertrophy. The case was to be reviewed in three months' time.

Depressive State in a Patient with Chronic Colitis.

The next patient presented was a single woman, who had been admitted to the clinic in July, 1953, because she had been suffering from mucous colitis associated with high blood pressure. An interview with her resolved itself into a constant struggle to direct the conversation away from her intestinal canal. Her bowels would not move, and she had great pain when she attempted to effect this. She passed only wind and slime. She complained that she had a great throbbing around the rectum, that her food seemed to go straight through her and came out looking like pus, and that all her food appeared to disagree with her. She was also depressed and rather agitated and appeared to be interested in nothing else but her bowels. She was withdrawn from society. She had severe insomnia, no appetite and a feeling of despair which made her contemplate suicide. She had a peculiar feeling in her head when she lay down, and complained of pains in the abdomen. She was very small and emaciated, her blood pressure was 240 millimetres of mercury, systolic, and 110 millimetres, diastolic, and there was evidence of hardening of the arteries. She had a normocytic, moderately hypochromic anemia with an increase in the number of eosinophile cells. Fractional test meal examination showed no blood or lactic acid; the stomach was emptied in one and three-quarter hours. She had undergone hysterectomy at the age of fifty-three years. Investigation of her family history revealed that her father had died of plumbism when she was aged two years, and her mother had had a struggle against poverty in order to rear the patient and her five siblings. A stepfather was acquired in due course; and as he was very strict and unyielding, the patient and her siblings had left home as soon as they could. The patient had been doing domestic work all her life, with periods of factory work at times. Recently on medical advice she had rested at the home of a niece and was doing quite well until the niece's husband committed suicide in the backyard. The patient was extremely worried and depressed over the whole affair, and her condition deteriorated a good deal. She had remained single because in her youth she had looked after certain relatives who were ill and her chances of matrimony had passed her by. According to her niece, she had been a gentle and lovable person, timid and retreating, and on her days off duty she visited relatives. She had at times been resentful at the way life had turned out and had become more and more rigid in her outlook and had always had a superior outlook on life. Her resentment was aroused when her stepfather was so strict and unlovable, and she disliked the mother for bringing him into the family. Later on she cared for her mother in her last long illness and was resentful of the lost chances of happiness which resulted. After a life devoted to steady toil and being kind to others, she was upset by the suicide of her niece's husband, and her mucous colitis appeared to be the result, associated with her hypertensive state.

In a comment, it was pointed out that the view was accepted that nervous states characterized by anger and resentment were often associated with hyperfunction of the colon. That in turn set up engorgement, hypermotility and hypersecretion of the enzyme lysozyme. The colonic mucosa became increasingly friable, and sustained feelings of anxiety with resentment resulted in submucosal bleeding and ulceration. The neurosis began before the illness of the bowel, and its onset usually occurred in association with some crisis in which the need of the patient for tender care was threatened, typically by the loss of a parent. In the present case the loss appeared to be that of the niece's husband in a dreadful manner, and the patient probably had some guilty feelings that she might have made the man worry at her presence in his home and that she had made

some contribution to his suicidal urges. The typical ulcerative colitis patient was immature and often dependent, and was one who repressed feelings easily. Reference was made to views on colonic reactions to emotion expressed by W. Grace S. Wolf and Harold Wolff, and also by W. Alvarez, who had written that colonic sufferers had the "caught in a trap" disease and were in some difficult situation from which they could not escape. Often because of financial need such a woman had to work on in a job which taxed her strength, or she had to care for sick parents and so was unable to marry the man who had been waiting for her.

The comment was made that the facts described appeared to be those setting up the illness of the patient under discussion. She was given a short course of electroconvulsive therapy with insulin in tonic doses. She ate better, felt stronger and became less preoccupied with her alimentary canal and its dysfunctions. She associated well with other patients and was, in general, brighter. She would probably make a recovery from the present attack.

Anxiety Neurosis in a Patient with Gastric Ulcer.

A married woman, aged fifty years, the wife of a labourer and the mother of two children, had been admitted to the clinic in August, 1953, with a history of increasing depression for five years, of amenorrhoea for one year and of immediate symptoms of chronic exhaustion, persistent epigastric pain, pains in the head, neck and legs, long fits of weeping, severe insomnia and inability to carry on her household duties. She had had a cholecystectomy in 1940 and had been found to have a gastric ulcer in 1950. She was underweight, and X-ray examination showed the gastric ulcer to be still present. There was deep epigastric tenderness, and some pain occurred shortly after meals. The ulcer was on the lesser curvature of the stomach at the mid-point. Blood examination revealed the presence of a normocytic, moderately hypochromic anemia. Occult blood was found in the faeces. Her life story indicated that she had always been exposed to conditions which set up fear and tension in her mind. Her father was a chronic alcoholic, and there was constant trouble between the parents over that fact, the mother suffering abuse and financial shortage. The quarrel scenes between her parents had always caused fear and unhappiness in the patient's mind as a child, and she remembered being frequently tensed and tremulous. The mother had brought the children up well and sent them to school and to Sunday school regularly and to church when possible; the patient had obtained a good deal of mental relief in that way. She had always been of a superior type, had chosen her friends carefully and had copied her mother's habits of household supercleanliness. She had always disregarded children who were unpleasant in their habits and language. At the age of sixteen years she had had gastritis with pain and vomiting, and the attacks had become worse when there was trouble between her parents. At the age of twenty-four years she had married; and as soon as her husband had obtained a home, her parents had gone to live with her. Her father had died at the age of fifty years from heart failure; but he had been bedridden for a long time and the patient had experienced anxiety about him, as he used to have very bad heart attacks and in addition had made gestures at suicide. Then she had been advised to have herself sterilized because she had a retroverted uterus, and that had been done. Unfortunately she still had great cause for anxiety and worry, because she soon desired to have a few more children, and that was now impossible. Finally she adopted a boy, who was now eight years old. Even then her troubles continued, as her mother, now aged eighty-one years, was still living with her, and the patient was constantly anxious lest the mother fall and injure herself or lest she die in her sleep. The patient, who had always been refined in her ideas, was distressed by her husband's frequent use of bad language. He said that he would not give up that habit, claiming that one could not drive a tractor without such aid. Sexual intercourse was normal. Her own doctor always told her that she was too fussy about her house and furniture, and she admitted that she was house-proud. Her chief hope was that she would never be found neglectful in that direction. She had had worry when her two children were young as the girl suffered from poliomyelitis at the age of three years and her son developed asthma at the age of one year.

The comment was made that the patient, a woman now aged fifty years and menopausal, had all her life been exposed to emotional stresses, which set up anxiety and tension in her mind. Her stomach, through the autonomic system, which was stimulated by the inner conflicts, was prepared as if it was about to take food; and that over-

stimulation led to dysfunction with over-secretion of acid and increased activity in the walls of the viscera, with engorgement and hyperemia. As a result of frequent happenings of that nature, gastritis was set up; and later on the erosions of the mucosa followed, and ulcers developed. It was pointed out that peptic ulcers of the stomach must form that way frequently, but more often duodenal ulcer would result. The duodenum was said to be less resistant to its excess secretion than was the stomach. In such people the personality was mostly dependent in type, but consciously the patients appeared to strive for dominance and success. There were two types striving for dependency: the first were dependent types, which strove for leadership and dominance, and the second were chronic alcoholics and delinquents, who adopted methods of dependence socially not acceptable, shamelessly taking all and giving nothing. When anxiety and striving against life's difficulties failed, then ulceration could set in, and after that a state of depression occurred. Anxiety still stood defensively as striving, while depression was the full admission of failure. The patient under discussion was to have full treatment for the gastric ulcer, both dietetically and from the mental aspect. Electroconvulsive therapy, the administration of sedatives and above all bodily rest had been of the greatest help to her, and she had greatly improved. The position was summed up in the statement of Eusterman that the emotions had a conscious cerebral placing, but subcortical centres were joined and the autonomic nervous system allowed a morbid physiological state to grow, which led to chronicity of the lesions in the mucosal areas.

Drug Addiction Associated with the Thalamic Syndrome.

A married woman, aged forty-six years, had been admitted to the clinic in August, 1953. Her referral letter stated that she was a morphine addict requiring mental rehabilitation. She had enjoyed good health until the age of thirty years and had borne six children, the delivery in each case being of the breech type. Her seventh confinement had been difficult, necessitating instrumental delivery, and the puerperium was somewhat stormy. The patient claimed that the obstetrician, whom she knew well, was in a hurry to go to the races and used forceps prematurely. Shortly afterwards she experienced severe backache, followed by profuse menorrhagia over the next several months. She consulted more doctors, and finally a subtotal hysterectomy was performed shortly after the birth of her eighth child. After the operation her backache cleared up and she felt much better. About 1946 she noticed slight vaginal bleeding, and biopsy revealed carcinoma in the residual part of the cervix. She was given 200 milligramme hours of radium therapy, followed by radical excision of the area. During that time she was given pethidine for relief of the pain. Shortly afterwards she developed precordial pain and dyspnoea, and "heart disease" was diagnosed. She was admitted to a private hospital and over a period of twelve weeks was given daily injections of morphine in doses of one-quarter to one-half grain. After that she spent a period of seven months in hospital, receiving two injections of "Dilaudid" and one of morphine daily. She quite freely admitted that pain was now a minor factor, and her demand for opiates was intense. She made several attempts to cease the habit, but to no avail. As a result she said that she stayed on the injections "living in a dirty little dungeon world" of her own. She became demanding, irascible and self-willed, and a trial to herself and to her family. About 1949 she consulted Dr. S. J. Minogue, and he withdrew the morphine under cover of heavy sedation. She left hospital six weeks later "feeling very well indeed". In January, 1952, she was again admitted to hospital with "heart trouble", which cleared up in four weeks. In February, 1952, shortly after leaving hospital, she felt "a sudden severe blow on the head", which stunned her momentarily but caused no pain. She remembered looking for her left hand and being unable to find it; then she felt the right side of her body convulsing. She was aphasic and had facial paresis. She was given half a grain of morphine by her local doctor and sent to hospital, where she made a good recovery in six weeks. Her speech returned, but to her horror she remained paralysed on the left side. About three months after the stroke she began to experience a peculiarly intense and indescribable pain, which affected the entire left side of her body. The pain had a dull burning quality and was so easily "triggered off" that a fly alighting on her body would produce a wave of pain, making her cry out. Hot or warm objects felt like ice, and cold objects burnt like fire. A sudden loud noise would produce a paroxysm of pain. Ordinary analgesics were of no help, and she returned to taking morphine. Within a short time she was taking two or three grains a day together with large

amounts of pentobarbital and "Carbital". During the few months before her admission to Broughton Hall Psychiatric Clinic she had been feeling her dependency on the drug for its own sake, as the painful thalamic syndrome was waning in intensity. She had become acutely resentful of her illness and felt that there was no hope for her, but she eagerly sought treatment when she realized that the morphinism was again her major problem. On admission to the clinic, she appeared as a prematurely aged woman, bed-ridden, with a spastic contracted left arm and a severe flexion contracture of the left leg. She was irritable, petulant and hypochondriacal, but in spite of her acidulous comments she revealed no basic personality deterioration. She was mildly depressed, and in spite of her attempts to put on a brave front she would frequently burst into tears, to return to her usual cheerful self a moment or two later.

The comment was made that consideration of the patient's early family history was helpful in assessment of her present personality. She was the eldest of three, and the only girl. Her father was an illiterate chronic alcoholic who ruled the family with violence and boastfulness. Her mother was a religious woman dominated by the father and had tended to reject the patient in favour of the boys. The patient was always craving affection and lavished it on her brothers, mothering them and protecting them from the father. She did well at school and attended business college for a time, leaving because of financial stress to work in a factory and later as a domestic. She married at the age of twenty years, her husband being a trade union official. She wanted to have a large family, and was happy to enter domestic life. Her husband drank heavily for some years, but later became a member of Alcoholics Anonymous. Prior to that the patient had felt that she had to take too much responsibility, and there was some friction. Since her illness her husband had lavished care and attention on her, and she resented having to depend on him so much. The patient's problem was regarded as a threefold one. She had her morphinism, her hemiplegia and her thalamic syndrome with her attitudes to the future. She had accepted withdrawal of the morphine very well, and in spite of considerable pain and discomfort the dosage had been reduced to one-quarter grain once or twice daily, finally being completely withdrawn. The patient was quite pleased about that and appeared determined to avoid morphine in the future. The hemiplegia had resulted in a useless contracted left arm which the patient was quite prepared to "put up with as a useless passenger" for the rest of her life, and a useless left leg with severe contracture of the hamstrings. The orthopaedic opinion was that the last-mentioned condition could be remedied by application of a Turnbuckle splint. The patient had a trophic ulcer on the left foot, which was rapidly healing, but by far the major problem was her thalamic syndrome. Minor stimuli were sufficient to provoke intense pain, though that was now chiefly confined to receptors below the level of the knee. Nursing and moving the patient were still a problem. However, it would appear that the thalamic sensation was decreasing, and there was hope that it would diminish still further. The patient had good insight, and was quite an intelligent person. She had developed a compensatory veneer of brittle fatalism and expressed her attitude in the words "I've got used to me like I am". She realized that she must have some constructive attitude to the future, and she lived for the pleasures of her grandchildren and for the ripples engendered by her caustic wit. She had made a very good adjustment in many ways, and the present main line of attack in treatment had been to improve her physical condition. She was to be given a course of subcutaneous insulin, and attempts would be made to improve the status of her lower limb contracture. She presented a multiple problem—medical, surgical, neurological and psychiatric. In the etiology of her condition the iatrogenic factor was not small, and it was felt that the profession owed such people more "mental rehabilitation" than could be found in a dose of morphine. It was of interest to note that one of the physicians responsible for prescribing morphine for her during her early days was subsequently treated at the Broughton Hall Psychiatric Clinic for morphinism.

Subarachnoid Haemorrhage followed by Paraphrenia.

A man, aged forty-three years, had been admitted to the clinic in August, 1953, complaining of intense persecution and of hearing persecutory voices. He was depressed and had suicidal thoughts. He said that he was "the lowest mongrel on earth", and he appeared bereft of insight. In April, 1953, he had been riding a bicycle when he experienced a sudden intense pain in the back of his head. He had not lost consciousness and was able to continue riding, but he had commenced to vomit shortly afterwards and continued

to do so throughout the night. He had remained home on the next day and had then returned to work for the next fortnight. He was a hardware buyer by occupation. He was well and continued to play bowls, but he noticed some diminution of his visual acuity. Then, fourteen days after the initial pain had occurred, he had had another severe attack whilst lying in bed. The occipital pain and the vomiting continued for three days, and he was then admitted to Newcastle Hospital. Lumbar puncture carried out on his admission afforded him much relief and revealed the presence of blood-stained cerebro-spinal fluid, containing 248,000 erythrocytes and 250 leucocytes per cubic millimetre; the chloride content was 690 milligrammes per centum. A diagnosis was made of subarachnoid haemorrhage, and the patient was kept under observation for fourteen days before he was discharged from hospital. He then came to Sydney and was admitted to Saint Vincent's Hospital in June, 1953, when lumbar puncture revealed a clear colourless cerebro-spinal fluid at a pressure of 150 millimetres. On the day after his admission to the hospital the patient was disturbed on the balcony wanting to commit suicide and saying that he did not have the guts of a louse. Subsequent X-ray examination of the skull and percutaneous angiograms revealed no abnormalities. The patient, who was by now quite uncooperative and somewhat irrational, was discharged from hospital on June 30, 1953, at his own request. Dr. Minogue had interviewed him in consultation before his discharge from hospital, and had considered him "acutely psychotic, aetiology uncertain". By now the patient was acutely delusional, stating that he was not fit to live, that he had done something terrible and that his photograph was being published in all the papers. He felt that everyone was pointing him out and that the whole world was discussing him. Every action was significant. If a car horn blew, it was referring to him; if an aeroplane flew overhead, it was watching him. The radio stations constantly referred to him, and he was plagued by the fear that he would harm his wife and child. Even inanimate objects were sneering at him, and he felt himself the focus of universal attention and persecution. He had a constant premonition that something terrible would happen to his family. He had agreed to come to the clinic, and on admission he had discussed his ideas freely. He was agitated and obviously distressed and was treated in seclusion for the first few days. After that he settled down very well. Physical examination of the patient revealed no abnormality beyond a slight tension of the tongue. His blood pressure was normal. Electroencephalography showed an unusual amount of activity of 18 to 20 cycles per second in all leads, with localized activity of five to eight cycles per second in the left temporal region. Psychometric evaluation was carried out when the patient was almost symptom-free. Thorough investigation of his intellectual functioning revealed no disturbance, and it was thought that there was no evidence to suggest intellectual deterioration or organic type regression of emotional control. Examination according to the Wechsler-Bellevue scale indicated a superior functioning level of 125. The patient had had no specific treatment since admission to the clinic, but in spite of that he was now almost completely well. He still struggled against the residuum of his paranoid ideas, but he had good insight for those and claimed that the persecutory notions were now fleeting and illusory, whereas previously they had been very real. His auditory hallucinations consisted of an occasional transitory "mumbling of voices" only. He was aware of his previous haemorrhage and accepted the explanation that his psychic disturbance was due to that. It was considered that the patient's psychic disturbance was a post-hoc phenomenon, and the fairly rapid resolution of symptoms in the complete absence of treatment reinforced that idea. The patient had not a true paranoid state of the type commonly met with in the clinic. There was a universality of his ideas of reference which, occurring in a setting of otherwise clear intellectual functioning, seemed to be very atypical. The presence of an electroencephalographic focus in the temporal cortex was an interesting finding, and it was considered that it would be worth while to repeat the electroencephalogram during the follow-up period. It was interesting to speculate on the outcome, should electroconvulsive or subconvulsive therapy have been used during the acute stage. It was pointed out that if electroconvulsive therapy did cause brain damage in therapeutic doses, it would appear to be chiefly confined to small petechial subarachnoid haemorrhages and diapedesis of red cells; so that the use of electroconvulsive therapy would appear to be contraindicated when there had been previous haemorrhage.

In a general comment it was stated that the presence of psychic disturbance after subarachnoid haemorrhage had

long been known, and had been mentioned by a number of authors. Of those, only Silverman had mentioned paranoid psychosis complicating subarachnoid haemorrhage; he had reported a case similar to the present one, though in his case the patient, a medical practitioner, had lost his paranoid state within four weeks. Both Kinnier Wilson and Goldflam agreed that the prognosis in such cases was good, and from the disappearance of the present patient's symptoms, it would appear to be favourable in his case. The question was begged whether or not the patient would develop a similar paranoid state from purely endopsychic causes, had he not had a haemorrhage. It was pointed out that he was not usually of the suspicious, pedantic, solitary nature, as was common in such cases. On the contrary, he was a happy-go-lucky, fairly extroverted personality, quite well adjusted in his present life situation, and emotionally he seemed to be normally matured. It was not usual for such acute paranoid reactions to occur in the presence of good personality structure, and the question arose whether the condition was perhaps more common than was generally thought, and also whether, because of the lack of evidence for small subarachnoid haemorrhages, other cases of paranoid psychosis might not have some organic basis. As the electroencephalogram showed some evidence of localized cerebral destruction in the left temporal area, it was interesting that no other symptoms referable to that region had been elicited other than auditory hallucinations. The patient was to be discharged from the clinic on the day of the meeting, when it was felt that a careful follow-up over the next two years would be of interest and value.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

A WHALE IN PORT JACKSON.¹

[July, 1790.]

THIS month was marked by nothing worth communication except a melancholy accident which befel a young gentleman of amiable character, one of the midshipmen lately belonging to the *Sirius* and two marines. He was in a small boat with three marines in the harbour when a whale was seen near them. Sensible of their danger they used every effort to avoid the cause of it, by rowing in a contrary direction to that which the fish seemed to take; but the monster suddenly arose close to them and nearly filled the boat with water. By exerting themselves they baled her out and again steered from it. For some time it was not seen and they conceived themselves safe, when rising immediately under the boat it lifted her to a height of many yards on its back; whence slipping off, she dropped as from a precipice and immediately filled and sank. The midshipman and one of the marines were sucked into the vortex which the whale had made and disappeared at once. The two other marines swam for the nearest shore: but one only reached it, to recount the fate of his companions.

Correspondence.

THE CHILD IN HOSPITAL.

SIR: Your leading article on this subject, with the accompanying report of the symposium held by the Melbourne Paediatric Society, published on April 10, 1954, will give the greatest pleasure to all who are striving for universal recognition of the emotional needs of the small child in hospital. It is hoped that these and other similar articles will be carefully perused by all practitioners who accept responsibility for the institutional care of children between the ages of one and four years. Too often in the past, practitioners so placed have given only scanty lip-service to the view you have expressed that "even children are people".

¹From "A Complete Account of the Settlement at Port Jackson", by Watkin Tench (1791). From the original in the Mitchell Library, Sydney.

and that many of their hardships in hospital could and should be prevented. Even in the hospitals which you have credited with an "enlightened attitude" towards this subject, there are doctors who are not as yet in favour of free visiting and who are hesitant in accepting the help which a good occupational therapist can provide, even for small toddlers. Although it is the doctor in charge of a child who should be answerable to the parents for his well-being in hospital, those who carry the burden of the training of nurses have a fundamental responsibility. An illustration that all is not yet well in this regard, even in one of the "enlightened" hospitals, is the very recent experience of a junior nurse who, when spending a few minutes in play with a small surgical patient, was severely castigated by the ward sister for being "too friendly" with her charge.

In the account of the meeting of the Melbourne Paediatric Society I am reported on page 574 as having said that "most children appeared quite unaffected by their experiences" (in hospital). As the honorary secretary responsible for organizing the meeting, I am most anxious to correct the impression given by this sentence. I believe that all children under four years are affected emotionally by a stay in hospital, and in many cases psychological and psychosomatic disturbances can be chronologically related to such an experience. But children, like adults, are individuals, showing a very wide range of variation in the stability, or instability, of their personalities. I agree therefore with Dr. S. W. Williams that to many children the emotional upsets experienced by Laura in the Tavistock Clinic film would probably be insignificant. There does seem to me to be a risk of young medical men, and nurses, accepting the moral of the film uncritically.

Your invitation to a discussion in these columns on the child in hospital and maternal deprivation will, I trust, be widely accepted. Amongst other aspects of the Tavistock Clinic hypothesis that seem to me to merit critical discussion are the presumptions that the father-child relationship is of no importance, and that a good mother-child relationship prior to admission enables the child to stand up better to a period of separation in hospital.

Yours, etc.,

12 Collins Street,
Melbourne,
April 29, 1954.

JOHN H. COLMBRATCH.

CHRONIC SUPPURATIVE HIDRADENITIS.

SIR: The principles of treatment, radical excision and primary closure, which Mr. Hughes and Mr. Kernutt have advocated for chronic suppurative hidradenitis in the perineal region are correct beyond question (M. J. AUSTRALIA, April 17, 1954). However, one would be interested to know why they have used Thiersch grafts instead of rotation flaps, as this latter method of reconstruction ensures primary closure of the wound, with none of the disadvantages of the Thiersch graft. The wound is soundly healed within twelve days, without the patient having the discomfort of being in a lithotomy position for five to seven days. In my experience, the excision of the affected skin and subcutaneous tissue is best carried out in a position other than lithotomy; this attitude, though it may be more convenient for the surgeon, tenses the skin about the perineal region and accentuates the size of the defect produced by radical excision.

Yours, etc.,

201 Macquarie Street,
Sydney,
April 26, 1954.

J. C. FITZHERBERT.

UNIVERSITY EDUCATION IN A SCIENTIFIC CIVILIZATION.

SIR: The remarks of Sir Owen Dixon at the Science Congress, as reported in the issue of the journal of April 3, 1954, should give all those interested in education cause to think. Sir Owen was of the opinion that, "while it was admittedly absurd to insist that everyone should learn Latin and Greek, it was equally absurd to think that the community would not be the better off if a few men had this approach to a knowledge and understanding of the past. . . . The pursuit of learning for its own sake brought wisdom in its train, no matter what branch of human knowledge was being studied".

Forty years ago Latin and Greek were studied by a large number of students who had the aptitude for this type of work, but it must be admitted that some spent long hours of work in attempting to master these subjects, which were beyond them.

The question of the division between the scientist and the humanist has been discussed by Mr. Robert Birley, Headmaster of Eton College, in an article from *London Calling* of April 22, 1954, entitled "Greek or Chemistry—or Both?". He says: "By the Humanist I mean the man or woman whose education has been primarily based on the study of Languages, Literature and History." He goes on to say: "There are today in our society, two groups who have perhaps the greatest influence. . . . In Britain many of them will have had an education based on the classical languages and literature of Greece and Rome . . . on the other hand there are the Scientists and their educational background will be quite different. On the one side men who have social responsibilities feel helpless before the power which they cannot control or understand; on the other side men who control the power feel they cannot concern themselves with the social responsibilities in which it involves them."

Mr. Birley says that he has given the title of his talk "Greek or Chemistry or Both" and he chose it advisedly. He says: "I am going to consider only the ablest children because they will create the culture of the future. I take Greek because it is an extreme case, the most exacting Humanist study learnt in our Schools only by really able boys and girls. Chemistry is not quite in the same position, but it is the branch of science which involves the longest and most intensive study before specialist work begins."

While both Sir Owen Dixon and Mr. Robert Birley are dealing with the ablest pupils, we must also consider the education of our average students and plan their education along rational lines. Thus the remarks about ancient languages could also be applied to mathematics. Only a proportion of the students, for example, those who go into scientific work, require to have an advanced knowledge of mathematics. It should be noted that some universities in Australia do not require students to have a very advanced knowledge of mathematics for matriculation purposes in the faculty of medicine. Of course, a few who are going on to advanced study may require this knowledge, but, as Sir Owen Dixon has said, "it is absurd to impose on the majority standards that they cannot possibly reach by ordinary methods of study and at best have to rely on 'crammers' to pass examinations".

Dr. Wilder Penfield, neurological surgeon of McGill University, has written most interestingly on education in a lecture delivered at Oxford on "A Consideration of the Neuro-Physiological Mechanisms of Speech". His remarks applied to the teaching of foreign languages, and he says: "Let the first years from nursery school and kindergarten on to grades for children of 8 or 10 be conducted by foreign born teachers who will speak only their native tongue in school, at work and organised play. If such a school is staffed, for example, by German and French teachers . . . during the first stage of education they will be learning to talk and to read and to write. If this stage is properly handled the child will come through with no more effort than when he learns one language instead of two or three. At the age of 8 to 10 let the child take up mathematics, history and all other subjects that should be mastered including the dead languages as desired."

For general education we require that all students should have some knowledge of the nature of the physical universe, some knowledge of men and society, and some knowledge of the humanities, whether of literature or the arts; they should also be taught something of the crafts. The exact nature of the two latter will depend upon their personal desires and aptitudes, and it is most important that education should proceed to an age beyond fourteen, which is the statutory provision when education may cease in Queensland.

There is a great need for what may be called "adolescent education", and the system of national training furnishes an example of what may be done. If in connexion with this service there could be added something like the Army Education Service of the last war, but not so intensive, much good would accrue. Means should also be found for a national service for girls somewhat on the same lines and with the same objectives as the national service for youths, with, again, some system of education for citizenship.

G. M. Trevelyan, the noted historian, has told us that the number of people in England who can read and write far exceeds the number forty years ago. But the number that can critically examine what is written and can distinguish what is worth reading is relatively much smaller than it was, and the majority of people are swayed by what they

read in the popular Press, much of which savours of propaganda.

We have a long way to go before our people can be said to receive an adequate education.

Yours, etc.,
E. S. MEYERS.

The University of Queensland Medical School,
Brisbane,
April 27, 1954.

Post-Graduate Work.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

PROGRAMMES IN JUNE, 1954.

Courses for Part II of Higher Qualifications.

M.D. Part II and M.R.A.C.P.

A course suitable for candidates for M.D. Part II and M.R.A.C.P. will be conducted by the honorary staff at the Alfred Hospital for eight weeks, commencing on June 7 and continuing on five mornings a week. Enrolments, accompanied by the fee of £31 10s., should be made with the Melbourne Permanent Post-Graduate Committee, from whom a timetable is available.

Bacteriology.

A course in bacteriology, suitable for candidates for D.O., D.L.O. and D.G.O. will be conducted by the Committee at the Bacteriology Department, University of Melbourne. The course will commence on June 9 and continue on Wednesdays for twelve weeks. Nine lectures will be given at 3.45 p.m., followed by three lecture-tutorials with practical sessions from 2 to 5.30 p.m. The fee for the course is £10 10s., and enrolments should be made with the Post-Graduate Committee by June 1, 1954.

Psychiatry.

A psychiatry course for D.P.M. Part II candidates will be conducted by the Post-Graduate Committee, in consultation with the Australasian Association of Psychiatrists, on Monday and Thursday evenings for three months, commencing on May 31. The course is designed for post-graduate study, but will also be suitable for refresher purposes. The fee for the course is £14 14s., payable to the Post-Graduate Committee. Enrolments may also be made for single demonstrations or lectures at 15s. A detailed timetable of the course is available from the committee.

Radiodiagnosis.

The course in radiodiagnosis for D.D.R. and M.R.C.A. candidates, which commenced in May, will be continued on Monday and Thursday afternoons at 4.30 p.m.

Ophthalmology and Special Pathology.

The course in ophthalmology and special pathology for D.O. candidates, which commenced in May, will also be continued.

Courses for Part I of Higher Qualifications.

Courses suitable for candidates for Part I of higher qualifications will be continued at the University.

Demonstration at Flinders Naval Depot.

On Wednesday, June 9, at 2.30 p.m., Dr. Geoffrey Penington will lecture at the Flinders Naval Hospital on "Anti-Bacterial Therapy and its Complications". This is by arrangement with the Royal Australian Navy.

Skin Histopathology.

A course in skin histopathology will be conducted by the Dermatological Association of Australia (British Medical Association) in Melbourne on dates to be announced later, either June 28 to July 3, or July 5 to 10. Dr. L. A. Musso, of Sydney, will give six lecture-demonstrations, one on each day from Monday to Friday from 4 to 6 p.m., and Saturday at 11 a.m., at the University Pathology Department. The Association thinks that these lectures may also interest practitioners and pathologists outside their society and extends a welcome to those who may wish to attend. Their

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED APRIL 24, 1954.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism .. ..	..	2(1)	2(1)	..	2(2)	..	..	..	6
Amoebiasis .. ..	..	..	..	..	..	..	..	..	..
Ancylostomiasis	15	1(1)	..	..	..	..	1	..	17
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	..	..	..	..	..	..	..	..	..
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile)	5(3)	22(21)	3(1)	..	..	..	..	..	30
Diphtheria	6(3)	12(2)	2(2)	..	1(1)	..	..	1	12
Dysentery (Bacillary) .. ..	..	3(3)	1	..	3(3)	..	..	..	7
Encephalitis .. ..	..	..	..	1	..	..	..	..	1
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Hydatid .. ..	..	1	..	..	..	..	..	..	1
Infective Hepatitis	6(4)	13(9)	..	..	5(4)	..	..	..	24
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	..	..	8	..	..	..	8
Leptospirosis .. ..	..	..	2	..	..	..	..	..	2
Malaria .. ..	..	..	..	..	..	..	..	..	..
Meningococcal Infection	2(1)	4(3)	..	..	..	..	..	1	7
Ophthalmia .. ..	..	..	..	..	8	..	..	..	8
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..
Poliomyelitis	11(2)	17(9)	1	4(3)	9(4)	..	..	..	42
Psoralea Fever	2	..	..	..	..	..	..	..	2
Rubella .. ..	..	11(8)	..	..	2(1)	..	..	..	13
Salmonella Infection .. ..	..	..	..	..	..	..	..	..	..
Scarlet Fever	20(0)	37(23)	1	2(1)	1(1)	1	..	..	62
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	1	..	..	..	..	..	..	1
Trachoma .. ..	..	..	..	..	2	..	..	..	2
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis	49(37)	23(20)	7(2)	2(1)	1(1)	2(1)	..	..	89
Typhoid Fever	1	..	1(1)	..	1(1)	..	..	..	3
Typhus (Flea-, Mite- and Tick-borne) .. ..	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

¹ Figures in parentheses are those for the metropolitan area.

enrolments, together with a fee of £2 2s., should be sent to the Melbourne Permanent Post-Graduate Committee, from whom a programme will be available.

Information.

The address of the Melbourne Permanent Post-Graduate Committee is 394 Albert Street, East Melbourne, C.2. Telephone: FB 2547.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Week-end Course at Hornsby.

The Post-Graduate Committee in Medicine in the University of Sydney announces that, in conjunction with the Kuring-gai District Medical Association, a week-end course will be held at the Hornsby and District Hospital, Hornsby, on Saturday and Sunday, June 5 and 6, 1954. The programme is as follows: Saturday, June 5: 2 p.m., "Recent Therapeutic Advances", Dr. A. W. Morrow; 3.30 p.m., "The Integration of Psychiatry and Internal Medicine", Dr. David Ross. Sunday, June 6: 9.30 a.m., "Use of Oxytocics in the Third Stage of Labour" and "Hormones in Obstetrics", Dr. R. C. Gill; 11 a.m., "Orthopaedic Abnormalities in General Practice", Dr. R. E. Wherrett.

Fee for attendance will be £2 2s., and those wishing to attend are requested to notify Dr. Richard C. White, 196 Rowe Street, Eastwood, as soon as possible. Telephone: WL 1698.

Clinical Meeting at Balmoral Naval Hospital.

The Post-Graduate Committee announces that Dr. R. G. Epps will give a lecture on "Normal and Abnormal Electrocardiography" at 2 p.m. on Tuesday, June 8, 1954, at the Balmoral Naval Hospital. Clinical cases will be shown after the lecture. All members of the medical profession are invited to attend.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Mitchell, John Howard, M.B., B.Ch., 1937 (Univ. Dublin), H.M.A.S. *Penguin*, Balmoral, New South Wales.

Miles, Derek Frazer, M.B., B.S., 1950 (Univ. Sydney), 97 Mitchell Street, Stockton, New South Wales.

Medical Prizes.

MEDICO-LEGAL SOCIETY OF VICTORIA: STEWART MACARTHUR PRIZE.

THE Medico-Legal Society of Victoria has announced that the Stewart MacArthur Prize, given by the Society for an essay on a subject of medico-legal interest, was awarded for 1953 to Mr. S. W. Johnston, of Melbourne, for an essay entitled "The Symptomatic Alcoholic". The committee of the Society has decided to make the Stewart MacArthur Prize available in the year 1954, for the best essay on a subject of medico-legal interest.

The prize is a prize of £25. Relevant conditions are as follows: (a) The prize shall be open to undergraduates taking the legal or medical courses at the University of Melbourne and articulated law clerks and to legally qualified medical or legal practitioners resident in Victoria of not more than three years' standing. (b) Each essay submitted shall be upon a subject of medico-legal interest which shall be selected by the candidate. (c) An essay in collaboration between a medical and a legal candidate may be submitted, and in the event of such an essay being awarded the prize, the prize shall be divided between the authors. (d) All essays submitted shall become the property of the Medico-Legal Society of Victoria, which may, at the discretion of the committee, publish any of them in the *Proceedings* of the Society, or otherwise deal with them as the committee may think fit. (e) The prize shall not be awarded if either the examiners or the committee of the Society think that

the standard of the essay or essays submitted is not sufficiently high to justify the award of the prize.

The committee has fixed December 31, 1954, as the date for the closing of entries for the 1954 award. Entries should be addressed to the Secretary of the Society, Selborne Chambers, 462 Chancery Lane, Melbourne.

Medical Appointments.

Dr. Mary Lane has been appointed a member of the Council of Public Education in the Department of Education of Victoria.

Dr. K. H. Dudson has been appointed a deputy superintendent of the Mental Hospital, Sunbury, Victoria.

Dr. F. I. Wootten has been appointed government medical officer at Nanango, Queensland.

Diary for the Month.

- MAY 17.—Victorian Branch, B.M.A.: Finance Subcommittee.
- MAY 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
- MAY 19.—Victorian Branch, B.M.A.: Clinical Meeting.
- MAY 19.—Western Australian Branch, B.M.A.: General Meeting.
- MAY 20.—Victorian Branch, B.M.A.: Executive of Branch Council.
- MAY 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
- MAY 25.—New South Wales Branch, B.M.A.: Ethics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 173 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 295 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Tasmania: Part-time specialist appointments for the north-west coast of Tasmania.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 3651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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